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PRIVATE FREIGHT CARS AND AMERICAN RAILWAYS

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STUDIES IN HISTORY, ECONOMICS AND PUBLIC LAW

EDITED BY THE FACULTY OF POLITICAL SCIENCE OF
COLUMBIA UNIVERSITY

Volume XXXI] [Number 1

PRIVATE FREIGHT CARS
AND
AMERICAN RAILWAYS

BY

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New York
COLUMBIA UNIVERSITY
LONGMANS, GREEN & CO., AGENTS
LONDON: P. S. KING & SON
1908

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PREFACE

The scant literature that exists on the private-car question fails entirely to present a fair and complete view of the subject because of its controversial character. It has been my aim in the following pages to deal with the question impartially, and to give equal weight to both sides.

The importance of privately-owned cars as a feature of the transportation problems of the country, and as a powerful influence in the development of its economic and industrial resources, seems to justify the present monograph, and it is hoped that the first two chapters, which are mainly historical, may be regarded as a slight contribution to a neglected phase of our economic history.

My work has been hampered by a lack of material due to the reluctance of private-car companies to divulge facts concerning their earnings or their relations with the railroads. What data I have been able to secure in regard to the earnings of private cars and similar questions have come from various sources and contain many conflicting statements. For these reasons I have been compelled in many instances to resort to approximations. In dividing my work into chapters I have found the different phases of the question so closely related that I have been forced to repeat certain facts in different connections, but I trust that what is gained in clearness will more than counterbalance any tediousness resulting from such repetition.

I wish to express my appreciation of the interest evinced and the substantial aid given by the many railroad officials, car-line officials, and fruit-dealers of Chicago, who have kindly given much of their time. I am indebted to Professor David Kinley, under whose direction I completed the first part of my work, to Professor B. H. Meyer, who read critically a large part of my manuscript, and to Professor Edwin R. A. Seligman, whose interest, criticisms, and suggestions have been of great value. Professor H. R. Seager has also been kind enough to correct the manuscript and read the proof. I am also indebted to the Carnegie Institution for an appropriation to aid me in my investigations.

LOUIS D. H. WELD.

COLUMBIA UNIVERSITY, *March, 1908.*

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INTRODUCTION

Recent events have brought private freight-car lines into unpleasant prominence. Popular articles have been written denouncing the evil practices of the companies owning such cars. The Interstate Commerce Commission has investigated these companies, holding special hearings for the purpose, and the Committees on Interstate Commerce of the Senate and House of Representatives have received testimony in regard to them. The principal alleged abuse which has given rise to agitation against privately owned cars has been the icing charges of certain powerful companies operating refrigerator cars, and it is about this type of car that the controversy has thus far largely centered. Private companies also own cars built to carry cattle, oil, coal, furniture, and many other commodities, which differ in important respects from the majority of the freight cars owned by the railroads, although the railroads, too, now own many cars of special design. Private freight cars are usually, therefore, cars built to carry particular kinds of commodities. Box cars and flat cars are thus eliminated, and, although coal cars come under this description, they will not be treated to any extent in this monograph. It will be convenient to refer to such cars in future as special-equipment cars.

It is difficult in some cases to draw the line between railroad ownership and private ownership. In general, it may be said that the status of a special-equipment car falls under one of three heads: first, it may be owned outright by a railroad; second, it may be owned by a separate corporation, but with the stock of that corporation owned or controlled by a railroad; or third, it may be owned by a person or company entirely independent of any railroad. It is when a car comes under this last heading that it is strictly speaking, a private car. Those owned by subsidiary corporations of railroads are operated in the majority of cases as if owned directly, and are therefore considered as railroad-owned cars. The difficulty in determining whether or not a car should be classified as a private car arises from the fact that it is not always plain whether the corporation owning the car is in turn owned by a railroad. This is especially true in the case of coal cars.

To understand the private-car situation, it is necessary to make a study of the development of the principal kinds of special-equipment cars which are commonly owned by private companies. These are refrigerator, stock and tank cars. It will be noticed that the refrigerator car is treated more fully than the others, because, as has just been remarked, the present agitation has centered around this type, and also because it greatly outnumbers either of the other kinds. The part that special-equipment cars have played in the development of the country will also be treated almost exclusively in connection with the refrigerator car.

CHAPTER I

History of Special-Equipment Cars

REFRIGERATOR CARS

The early history of refrigerator cars is somewhat obscure. There are no statistics to show the number owned by private companies over a series of years, and it is impossible to enumerate them exactly even at the present time. There are conflicting statements as to which was the first refrigerator car used, and attempts that have been made to write up this history have had to be based more on the recollection of men who were alive at the time when refrigeration in transit was first introduced, than on any definite and authentic records.

Probably the earliest attempts to refrigerate freight cars were made on the Michigan Central Railroad in the early sixties for the carriage of fresh meat from Chicago to New York and Boston.[1] Ordinary box cars were fitted with platforms at each end, about three feet from the floor, with metal catch-basins to carry away the melted ice, and heavy swing doors were suspended from the ceiling to hold the ice in place. These bins held from 2000 to 3000 pounds of block ice, and the ice could be placed in the car only when it was empty. A metal pipe carried the waste from the catch-basin through the bottom of the car. These were crude affairs, and can hardly be called refrigerator cars; but by carrying them on passenger trains as far as Suspension Bridge, N. Y., and there attaching them to fast freight trains, the railroads were able to land them in New York in about three days with the meat in good order. These attempts did not attract much attention, and were not successful enough to give any idea of the vast change that was soon to be brought about by the use of the more efficient refrigerator cars.

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[1] *Ice and Refrigeration*, September, 1904, p. 165.

At about the same time, the Pennsylvania Railroad was also experimenting in refrigeration under the direction of W. W. Chandler, who was for years at the head of the Star Union Line, and who did more than any other man to further the early development of this kind of traffic. It was about 1857 that Mr. Chandler had thirty box cars refitted with double sides, roof, and floors, and the interstices packed with saw-dust, and thus hatched what the present officers of the company claim to have been the first refrigerator cars. These cars had a hole in the floor between the doors for the leakage of ice water, and a box of ice was put in the door after the car was loaded. Mr. Chandler called this the " ice box on wheels," and it was used for the carriage of dairy products from the West. This car was soon improved by placing the ice in huge boxes hanging by iron straps in the ends of the car.

At about the same time that Chandler was instituting refrigeration in transit over the Pennsylvania, experiments were going on in Detroit in order to perfect a more efficient car. The first patent taken out for a refrigerator car was that of J. B. Sutherland, of Detroit, Michigan, under date of November 27, 1867.[1] In 1868 Mr. D. W. Davis, of Detroit, who had been experimenting since 1865, patented his improved refrigerator car, and this was one of the most widely used of the very early cars. A successful shipment of dressed beef from Chicago to Boston in September, 1869, in this car, may be said to be the real beginning of the dressed-beef industry. The Davis car came into competition with the car invented by Chandler on the Pennsylvania Lines, and present officials of the Star Union Line remember how they used to characterize the Davis car as a "sweat box," a description justified by the fact that the old Davis car had no adequate means of ventilation.

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[1] W. A. Taylor, *Yearbook of Department of Agriculture*, 1900, p. 574.

The first attempts to refrigerate fruit in transit were probably those made in 1866 by Mr. Parker Earle, then residing in Cobden, Illinois.[1] In that year he built twelve big refrigerator chests for shipping strawberries by express. Each chest held 200 quarts of berries and 100 pounds of ice. When taken good care of, the berries carried well, but on account of carelessness in handling, and excessive express rates, this method had to be abandoned. Similar attempts were made about this time in the shipping of fruit from Charleston, S. C., to New York by steamer, and Georgia shipped her first peaches to distant markets by express in 1877. In 1868 a Davis car was brought to Cobden, Ill., and loaded with strawberries. The car contained a vertical cylinder in each corner, about fifteen inches in diameter, and was iced from the top of the car, salt being mixed with the ice. The result of this experiment was that part of the berries were frozen, while the balance of the load was unequally cooled. The shippers suffered a loss, and did not feel encouraged to try it again. In the same year,[2] two carloads of Michigan peaches were shipped to New York in cars used on the Michigan Central for carrying meat.

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[1] F. S. Earle, *Yearbook of Department of Agriculture*, 1900, p. 444.

[2] Taylor, *op. cit.*, p. 574.

When they reached Suspension Bridge, N. Y., the cars were opened, and it was found that the heat thrown off by the ripening peaches had melted the ice, and that the fruit had spoiled, entailing a loss of over $1,000 per car. The failure was due to the warmth of the fruit when shipped and to the lack of re-icing facilities en route.

In 1869 another carload of strawberries was shipped by Mr. Earle and other fruit growers, from Cobden to Detroit in one of the Michigan Central cars. The ice melted in transit, owing to the removal of the plugs from the ice boxes in the roof by some railroad official in order to give the berries "a chance for a little air." When the car reached Mr. Earle, who had gone ahead to Detroit to make sure of a market, the berries were ruined, and the venture was a total loss.

Mr. Earle, however, continued his experiments, and built a cooling house in his packing shed at Anna, Ill. By leaving his berries in this house for twenty-four hours to cool off, and then sending them to Chicago by express, he found that they arrived in much better condition than those which were sent as soon as picked. He then went to Chicago and procured what was then the best refrigerator car that had been made,—the old Tiffany car, built to carry dairy products,—with a V-shaped ice box suspended from the roof and running the full length of the car, holding a maximum of a ton and a half of ice. After cooling the berries in the cooling house, they were placed in this car, and sent to Chicago. The venture was a complete success from the start, and resulted in placing on the Chicago market more solid and better-keeping berries than had ever before been seen there. The date of this first successful shipment was 1872. This car, built for dairy products, however, was not very satisfactory on account of its small ice capacity.

What was needed was a car that would hold four or five tons of ice, so that the warm fruit could be cooled in the car, and then taken on a two or three day trip with safety. Mr. Earle soon had such a car built,—one that was well insulated and with adequate ice capacity.

It was not until some time after this that fruit or vegetable shipments were made over any great distance, and the Middle West and West were ahead of the East in the development of this traffic. Some of the initial shipments under refrigeration from districts that have since become important and well known were:[1] first shipment of garden-truck from Norfolk, Va., to New York City, 1885, and from North Carolina, 1887; first shipment of strawberries from California to New York, 1888; first car-load of oranges from California to the East, 1888; first car-load of oranges from Florida to New York, 1889. Shipments had been made in ventilator cars before these dates.

The introduction of refrigerator cars was accomplished in the face of much skepticism and opposition on the part of both the growers and the traders. It was generally believed that when fruit had been on ice, it would decay rapidly after being taken off. This is true of fruit that is over-ripe before being placed on ice, though not true of fresh fruit if properly handled, but it took many demonstrations to induce growers to believe this. The use of refrigerator cars consequently increased but slowly at first, and it was not until some time later that even the experimental stage was passed. Mr. Armour, in his book, *The Packers, The Private Car Lines, and The People,*[2] tells us that Mr. Hammond of Detroit was one of the pioneers in the use of the refrigerator car for the carrying of meat products, and that his first successful attempt was in 1871. In this car, the meat came in contact with ice, became discolored, and did not keep well after being removed. To obviate this difficulty, the meat was suspended from the rafters and ceiling, but the motion of the cars in going around curves set the halves of meat swinging like pendulums, so that this motion was communicated to the cars. Some railroad wrecks were attributed to this cause, and the hostility of the railroads was aroused. Then came the partitioning-off of an ice bin at the end of the car, and later the true principle of refrigeration was discovered: that a current of air allowed to pass through an ice bunker in the upper corner of a car becomes chilled so that it is heavier than the air with which it comes in contact, and consequently sinks, circulates through the car, the warm air passing out through the ventilator. It was not until this system was adopted that refrigerator cars came into at all general use, and that refrigerator lines which could handle any extensive business were established. We shall now glance at the early history of some of these first lines, and see why they were built by private concerns and not by the railroads.

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[1] *Twelfth Census of the United States*, vol. v.

[2] Page 20.

By the year 1870 there were powerful vested interests shipping live cattle from Chicago and other western points to the East. There were important stockyards at Cleveland, Buffalo, Albany, Pittsburg, Boston, and several other intermediate places where cattle were unloaded, fed and watered, and reloaded. These people were naturally strongly opposed to the development of the dressed-beef traffic and the consequent decline of cattle shipping. The dressed beef that was carried over the Michigan Central was insignificant in amount, and the business was not receiving encouragement nor being developed. Mr. Gustavus Swift was the first to inaugurate an adequate refrigerator service for carrying dressed meats, and the first to demonstrate what could be done.[1] In 1875 he began by experimenting with a few carloads, supervising the work personally. After finding some one to handle his shipments in the East, he started in to do business on a large scale,—an undertaking at that time very bold and hazardous. He approached the Grand Trunk Railroad, whose route was so circuitous that it did not handle much livestock and which consequently was not opposed to the development of the fresh meat traffic, and suggested that it build refrigerator cars for the purpose. Mr. Swift was informed that the road would be glad to handle the cars, but that it was unwilling to build such equipment. The railroad claimed that it was too experimental a business, and that it could not afford to build the costly cars required. Mr. Swift was therefore thrown upon his own resources, and it was necessary for him to build his own refrigerators if he wished to carry out the gigantic project of developing an extensive market for dressed beef in the East. This instance is noteworthy, for it, with many such refusals of railroads to build cars, explains the reason for the early private ownership of special-equipment cars. Armour, in his book, recounts the same experience when his father started in to ship dressed beef;[2] the railroad men themselves admit that they refused at first to build such equipment. There is, then, no doubt that private ownership of special-equipment cars originated largely because of the refusal of the railroads to build them. The early development of traffic in perishable goods was thus due to private companies, and not to the railroads.

To return to the work of Mr. Swift. He went to Detroit and ordered ten refrigerator cars of the latest and most satisfactory type, and began shipping beef both summer and winter over the Grand Trunk. He soon added to his equipment and has gradually increased it until now his company operates over 6000 cars. The consequent changes in the meat and livestock industries will be studied in another place. The other refrigerator-car lines built by Armour and Nelson Morris soon followed, as also those belonging to Cudahy, and Schwarzschild and Sulzberger. These cars were built for carrying beef.

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[1] Charles Winans, *The Evolution of a Vast Industry.*

[2] Armour, *op. cit*, p. 22.

The first refrigerator line of any importance operated solely for the fruit traffic was that of F. A. Thomas, a fruit and produce dealer of South Water Street, Chicago. His line was started in the following way.[1] A Detroit inventor named Carlton B. Hutchins perfected a refrigerator car in 1886, had fifty of them built, organized the Detroit Refrigerator Car Company, and operated them over the Michigan Central in the fruit and produce trade. Owing to a personal disagreement with the president of the road, Mr. Hutchins was obliged to cease operating his cars over the Michigan Central, and went to Chicago in search of some one who would use them. There he found Mr. Thomas and his son, who took them, and operated them in traffic to the East. In a few months Mr. Thomas prevailed upon the roads running to the Pacific coast to let him send five cars to California to test carrying fruit from there to Chicago. The fruit growers were skeptical and would not allow their fruit to be shipped in these cars, so the Thomas firm had to buy the fruit with which to load them.[2] The experiment was successful, and the possibilities in the development of this traffic were immediately realized. This was in 1888. Soon the Thomases, together with Mr. Hutchins, formed the California Fruit Transportation Company, (known as the C. F. T.), which rented cars of the Hutchins Refrigerator Car Company, a corporation which had been formed for the purpose of building and owning the cars, for $8.33 a month each. This company operated for a couple of years at enormous profits and its success allured others into the field. Soon the Goodell Line, owned by Porter Brothers, began in the California trade, and then came the Continental Fruit Express (known as the C. F. X.), owned by Mr. Edwin T. Earl. It was about this time (1890), that Armour became interested in the fruit traffic, and it is alleged that Earl got his first refrigerators from him.[1] At any rate, there soon ensued a fierce competition for the traffic, and cut rates and rebates were granted indiscriminately. Armour became allied with Porter Brothers, and later absorbed that company. The relations between Armour and this company were investigated in the Interstate Commerce Commission hearing of October, 1904.

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[1] Russell, *Everybody's Magazine*, March, 1905, p. 296. (I am informed by railroad men of Chicago who were in a position to know at the time, that Mr. Russell's early history is authentic.)

[2] J. C. Scales in *Saturday Evening Post*, March 10, 1906.

The cutting of rates was carried to such an extent that the Thomas Company became embarrassed, and after a few futile efforts to maintain its business, it was forced to the wall. The C. F. T. was later absorbed by Swift, and is now one of the lines operated by him. Not long after this, the Earl Company, C. F. X., was bought out by Armour at a high price, for this company had increased its equipment and business and had not been driven to the wall under the stress of competition. After this, the fruits of California were carried mainly in Armour cars, until late in the nineties when the Santa Fe began to build an adequate supply of refrigerators.

As stated above, it was not until about 1890 that Armour became interested in the fruit traffic. Previous to that time his refrigerator-car equipment was used only in hauling dressed meats. He began by building 1000 cars for the carriage of fruits and vegetables, and sent men into the fruit-growing sections of the country to demonstrate the practicability of his cars and to solicit business. The traffic developed, and he soon built another thousand cars. By building its own cars, and by acquiring the cars of other companies, the Armour Car Lines soon became the most powerful company in the business. The equipment of some fifteen to twenty different concerns, some of them very small, have been purchased by the Armour Company from first to last, but they now operate principally under the following names: Armour Car Lines (in the meat traffic), Fruit Growers' Express, and the Continental Fruit Express.

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[1] Russell, *Everybody's Magazine*, March, 1906.

EARLY HISTORY OF STOCK CARS

Ordinary stock cars were owned by the railroads at a very early date, and there is nothing of particular interest about their origin. They are not so expensive to build as refrigerator cars, nor do they require the same careful supervision and constant care. Some stock cars were owned by private individuals early in the seventies.[1] Lansing Millis of Boston, and later Squires and Company of the same city were among the first to enter this field, shipping horses, cattle, and hogs, from the Mississippi to the Atlantic seaboard. Subsequently they sold their cars to the Central Vermont Railroad. The common method of caring for live cattle in transit, as has been explained above, was to remove them from the cars at intermediate points where there were yards, there to feed and water them, and then reload them. For this, the railroads claimed that their equipment was adequate, and opposed the private ownership of such cars. It was not until improvements were introduced, which the railroads were slow in adopting, that private companies began to own cars to any extent.

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[1] Midgley, *Railway Age*, vol. 34, p. 368.

In 1883 an exposition of railroad appliances under the direction of Mr. E. H. Talbot, then president of the *Railway Age,* was held in Chicago. At this exposition, which was well attended by railroad men, there were exhibited models of stable cars, or "palace live-stock cars" for the better care of horses, cattle, sheep and hogs during transportation. These contained racks and troughs from which the cattle could be fed and watered in transit, and also moveable partitions which allowed the animals to lie down without danger of being trampled on. The Street stable car, the Burton stock car, and the Mather stock car, which are commonly seen on the railroads today, were among those exhibited. The part that Mr. A. C. Mather, the originator of the last-named car, played in the installation of this improved and more humane method of live-stock transportation is most interestingly told by himself in an article in the *Railway Age,* for October 16, 1903.

Mr. Mather's interest in the improvement of transportation conditions for livestock began in 1881, through an experience he had on a journey East. His train was held up for twelve hours on account of a wreck, and from his car window he could see in one car of a stock train which had been many days en route, five dead, and several maimed and bruised steers, caused by the efforts of one powerful animal to work his way from one end of the car to the other in obedience to his natural instinct to search for food and water. Mr. Mather resolved to design a car which would do away with these conditions. In a short time he obtained a patent and went to the railroads, actuated at first by purely humane motives. Although he spent hundreds of dollars in traveling, he could not get the railroads to build improved cars, alleging that they had no money to put into experiments. Not to be daunted, he set about building a car of his own, which cost him nearly $10,000 before he had perfected it so as to stand the heavy wear and tear to which it would be subjected. By a series of careful, personally-conducted experiments he demonstrated the efficiency of his car, not only from a humanitarian, but also from a commercial standpoint, because the shrinkage en route was shown to be substantially less than in the common railroad stock cars. Again he approached the railroads, but was met with the same refusal to build the equipment. They also told him that if he wished to build cars of his own, they would pay him the regular three-quarters of a cent mileage. Accordingly, he organized a company, and succeeded in raising money enough to finance the enterprise. This was the origin of the Mather Stock Car Company. As a reward for his successful experiments, Mr. Mather was awarded a gold medal by the American Humane Society in 1883.

Although it was claimed by Mr. Mather and the other owners of these improved cars that their use saved a considerable amount in shrinkage of livestock, some railroad men denied that there was any appreciable saving. Many tests were made and a select committee of the United States Senate, which took testimony on the transporation and sale of meat products in 1889, inquired into the matter. One man, representing the American Live-Stock Express Company,[1] testified that the shrinkage common in ordinary stock cars was diminished 65% by the use of the palace cars of his company. (The shrinkage in ordinary stock cars was about 8 or 10 per cent of the total weight of animals during transportation for 2000 miles). At any rate, it was generally believed,—and there was other good evidence to bear out this belief,— that there was a great saving from the use of the improved cars. They were built with lighter springs, and it was testified that they were as well equipped with wheels, brakes, and couplers, as Pullman cars, and there were often allusions to the furnishing of "Pullman cars for the transportation of cattle." By 1889 there were seven companies owning and operating stable cars.[1] The number of companies has not increased to any extent, although many of the old ones are still in business and have added materially to their equipment. The number of stock cars, however, owned by private companies, is now unimportant as compared with the number owned by the railroads, and there have not been the objections to their use that there have been to the use of refrigerator cars.

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[1] Testimony of B. F. Holmes, p. 559; testimony of J. B. Dutcher, p. 588.

HISTORY OF TANK CARS

Simultaneously with the introduction of improved cattle cars, came improved methods for the transportation of petroleum and its products. The ordinary way to ship oil was in barrels, which were loaded into ordinary box cars. The barrels often leaked, the cars became saturated with oil, offensive, and likely to take fire.[2] For these reasons, cars with large iron tanks cylindrical in shape, were introduced, into which the oil was run in bulk from reservoirs at stations where the refined product was collected. Only large establishments could afford to provide such expensive equipment, and since the freight rate on oil carried in tank cars was lower than on that carried in barrels, the ownership of cars was a distinct advantage to the large shippers. Furthermore, the owners of these cars refused to lease them to other companies, and the railroads would not supply equipment of their own, and never have done so to any extent even to the present day. The Standard Oil Company created a subsidiary concern,—The Union Tank Line Co.,—which built and handled tank cars, and which has always been the most important company operating such cars. It now owns about 10,000 of them.

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[1] Street Stable Car Co., American Live Stock Express, American Live Stock Transportation Company, Burton Car Company, Delaware and Lackawanna Live Stock Line, Canda Cattle Car Co., Mathews Car Company: *Hearing on Transportation and Sale of Meat Products*, p. 56.

[2] Midgley, *Railway Age*, vol. 34, p. 369.

On account of the advantage obtained by the large producers in owning tank cars, and especially because of the lower freight rate for oil carried in tanks, there was widespread opposition to their use. The Interstate Commerce Commission, in considering this question, stated that it was the duty of the railroads to provide equipment for their patrons, and that failure on the part of shippers to own such equipment should not result in a discrimination in rates against them. As a result of this decision,[1] the rates on oil in barrels were lowered, and those on oil in tanks were raised,—but this only partially diminished the discrimination in favor of the large shipper, and so the opposition continued.

Another ground for dissatisfaction on the part of the small refiner was that the rate on oil in tanks was on only the oil itself, while in the case of that shipped in barrels, the weight of the barrels was included in the charge. Commenting on this, the Commission declared that the tanks were as much a package for the carrying of oil as the barrel was, and that the practice of not charging for the weight of the tank was therefore an unjust discrimination. In accordance with opinions of this sort many complaints were filed by independent oil companies against certain railroads, alleging violation of the Interstate Commerce Act. The oil cases, as considered by the Interstate Commerce Commission are to be found in the first six volumes of its reports. This early history of oil transportation is ably told by Mr. J. W. Midgley, who was himself personally active in the controversy, and in the attempts made by the railroads to reduce the mileage paid to tank cars, in his articles in the *Railway Age*.[1] These attempts were eminently unsuccessful, and are only another evidence of the power that the Standard Oil Company had over the railroads.

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[1] Midgley, *Railway Age*, vol. 34, p. 400.

An interesting item in connection with this controversy with the Union Tank Line Company was an offer made by that Company to the railroads either that they buy the equipment of the company outright or that the company turn over its equipment to the railroads to operate, in return for which the company was to receive interest on the appraised value of the cars, plus a mileage of six mills per mile to cover expenses for repairs, *etc.* The second proposition was dismissed at once; the first was considered, but soon dismissed also. This is of interest, because one possible solution of the private-car question lies in this direction of ownership of special-equipment cars by the railroads, a point which we shall consider later on. It may be well, however, to remark in passing that the fact that the Union Tank Line was willing to sell its equipment to the railroads may be considered as evidence that the company was not making any large profits,—and it has since been brought out in the Interstate Commerce Hearings that the company has actually operated at a loss some of the time.[2]

[1] Midgley, *Railway Age*, vol. 34, p. 401.

[2] *Interstate Commerce Commission Hearings*, October, 1904, p. 219. (This will hereafter be referred to as I. C. C., Oct., 1904, *Hearings*.)

NUMBER OF PRIVATE CARS

As has been said before, the exact number of privately owned cars in the country is impossible to determine, and all estimates are necessarily only approximate on account of the failure of many companies to make reports as to the equipment owned and operated by them. The *Railway Equipment Register* furnishes the most complete statement of the different companies, with the number and description of their cars. Various estimates have been made: in 1900 attorneys for the Continental Fruit Express Company stated that the aggregate number of private cars in the country was about 113,000, of which 50,000 were refrigerator cars.[1] The estimate made by Mr. J. W. Midgley in the *Railway Age* for October 10, 1902, is probably the most accurate, but it is six years old. His estimate of the number of cars, together with their value is here given:

Kind of Cars.	*Number.*	*Value per Car.*	*Total Value.*
Refrigerator	54,522	$800	$43,617,600
Box	21,178	500	10,589,000
Tank	14,531	600	8.718,600
Stock	11,139	600	6,683,400
Coal	16,143	500	8,071.500
Flat	853	450	383,850
Furniture and vehicle	1,533	600	919,800
Poultry	325	800	260,000
Unclassified	10,622	500	5,311,000
Total	130,846		$84,554,750

In 1906 the number of private cars enumerated in the *Railway Equipment Register* (July, 1906), as nearly as can be told from the nature of the reports therein, was about 127,000. Some lines are omitted from this, however, as for instance most of the Armour lines, the Continental Fruit Express, owning 1745 cars, being the only Armour line included in the *Register*. This alone involves an omission of about 12,000 cars, and by adding 10,000 more for other possible omissions, we have about 150,000 cars, probably not far from the actual number in the country at present. The total number of freight cars owned by the railroads in 1905 was 1,692,194, or a little over ten times the number of private cars.

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[1] Brief and argument for the Continental Fruit Express Co., Intervenor in Southern California Fruit Exchange *vs.* Southern Pacific, Santa Fe *et al.*, tried before Interstate Commerce Commission, March 30, 31, 1900.

DEVELOPMENT OF RAILROAD OWNERSHIP OF REFRIGERATOR AND STOCK CARS

One thing to be noticed particularly in connection with the development of special-equipment cars is that it has been comparatively recent. In fact not until the later eighties were such cars numerous enough to play any important part in the railroad problems of the day. The ordinary stock cars were owned and used by the railroads at an early date. The palace stock cars, however, were not used until the eighties, and these were the ones which were owned by private companies. We have seen that refrigerator cars were generally owned at first by private companies, and that it was not until about 1890 that there were any important lines which carried perishable products besides beef. The development of refrigerator cars has thus taken place only within the last fifteen or twenty years, and, in fact, the traffic in perishable goods may be considered as still in its infancy.

Although the railroads at first refused to furnish refrigerator equipment of their own, it was not long before certain roads, which covered extensive sections of the country, and which had a diversity of climatic conditions along their lines, began on a small scale to build such cars. In 1885 the total number of refrigerator cars owned by the railroads of the country was almost exactly 1000. Such roads as the Illinois Central, Missouri Pacific, Louisville and Nashville, and the Union Pacific were among the pioneers in this development, and the largest number that was returned by any one road in 1885 was 162, owned by the Illinois Central.[1]

Mention should be made here of the old-fashioned ventilator or fruit cars. These had openings on the sides and ends, covered with wire screens or overlapping boards with spaces through which the air could pass. They were built especially during the eighties and early nineties for the purpose of carrying fruit and vegetables. Many of them are seen on the railroads today, but generally in a dilapidated condition, for they are being rapidly replaced by the more efficient refrigerator cars, and very few have been built during the last few years. They were of no value in winter, when there is as much need to keep perishable freight warm, as there is in summer to keep it cool. Furthermore, they could not reduce the temperature of a car below that outside, and they were only valuable in providing fresh air for the contents of the car and in allowing the warm air caused by the ripening fruit to escape while the car was in motion.

To return to the question of railroad ownership of refrigerator cars, the growth of their number is shown in the following table, based on figures compiled from Poor's *Manual*:

Year.	*No. of Cars.*
1885	990
1890	3,398
1895	7,043
1900	10,760
1905	24,570

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[1] Figures taken from Poor's *Manual*.

From this table it will be seen that the increase has been continuous and very rapid, especially since 1900. Prior to that date no particular attention was given by the railroads to this branch of their business, nor were their refrigerator cars subjected to any special supervision. In 1900, the Chicago, Burlington and Quincy organized a separate refrigerator-car division,—a part of the traffic department,—and placed an able man at the head of it to study conditions, to provide for the proper carriage of perishable products originating along the lines of the road, and to stimulate the production of such goods. The organization of this separate department was made more or less as an experiment, there being some doubt whether it would pay. As a result, however, the tonnage of perishable freight increased almost 100 per cent in three years,[1] and the creation of the department was soon justified. Other roads soon realized the possibilities in this direction and organized similar departments. The Santa Fe has until recently owned the largest number of cars, about 6000, operating them under the name of the Santa Fe Refrigerator Despatch Company.[2] During the year 1906 the Harriman Lines ordered 6600 refrigerator cars and organized a separate department to operate them, known as the Pacific Fruit Express, and this has displaced Armour cars on the Southern Pacific and Union Pacific roads. This fact is significant, in that it illustrates the tendency that there is today for railroads to own their own equipment. The reasons why a separate department should have charge of refrigerator equipment are: first, the traffic department is too busy in trying to increase tonnage to undertake to look after the special service necessary in the handling of perishable traffic; second, it is requisite to have some one study conditions along the line so as to be able to anticipate the moving of fruits by having cars provided; and third, the icing of cars, the location of icing plants, *etc.*, call for careful study and supervision.

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[1] *Railway Age*, Jan. 30, 1905.

[2] This company is really a separate corporation, but is so closely allied with the Santa Fe Railroad that it may be considered as a department of it.

Another method of railroad ownership of refrigerator cars is through the formation of a separate company, the stock of which is owned by the railroads, but which operates over certain lines as a distinct organization. These cars, although not bearing the name of any particular railroad, should not be classed with private cars. The two best examples of this are the American Refrigerator Transit Company, and the Merchants' Despatch Transportation Company. The American Refrigerator Transit Company [1] (commonly known as the A. R. T.), originated as a private company which operated over the Wabash and Missouri Pacific Railroads. It was gradually absorbed by these roads so that it became a subsidiary concern of the Gould lines, over which it now operates its 4500 cars. The Merchants' Despatch Transportation Company (known as the M. D. T.), is a fast-freight line belonging to, and operating over the New York Central Lines. Besides owning 4850 refrigerators, this line owns over a thousand ordinary box cars. Seventy of its refrigerators are assigned exclusively to American Express Company service, and are completely equipped for use in passenger trains.

As for the ownership of stock cars by the railroads, the figures for five-year periods are as follows:

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[1] I. C. C., Oct., 1904, *Hearings*, p. 86 *et seq.* *Cf.* also *Hearings of Senate Committee on Interstate Commerce*, May, 1905, vol. iii, p. 278.

Year.	No. of Cars.
1885	43,900
1890	54,900
1895	46,150
1900	38,150
1905	44,893

It will be seen that the decade 1890-1900 shows a considerable decrease in the number of stock cars. This is partly accounted for by the changes brought about in the livestock and packing industries through the use of the refrigerator car and the subsequent shifting of the packing centers to the westward. Formerly, cattle were carried to the Atlantic seaboard to be slaughtered, but with the growth of the dressed-meat traffic, the need for cattle cars on the eastern roads diminished. The increase in the number of cars since 1900 is due to the extension of stock raising farther to the west of the packing centers. The effect of these changes on the livestock and dressed-meat industries will be studied later.

CONSTRUCTION AND OPERATION OF REFRIGERATOR CARS

The art of refrigeration has advanced with rapid strides and the use of mechanical refrigeration in cold-storage warehouses, working in conjunction with refrigeration in transit, has had its beneficial effect on the fruit industry. Apples, especially, are thus held in cold storage, in order to keep them in sound condition during the fall and winter. During the early seventies, mechanical refrigeration was used in the packing houses to chill meats before shipment, but it was not until almost 1880 that cold-storage warehouses were built for the storing of fruit. Since that time, the number of such plants has increased, according to an estimate made in 1901, to 600 establishments in which fruits and produce are stored under mechanical refrigeration.[1] By mechanical refrigeration is meant the cooling process which is based on the principle that an expanding gas absorbs heat. Ammonia gas is chiefly used for this purpose, and by means of careful insulation, and well-constructed plants and machinery, it is possible to maintain definite temperatures for long periods with very slight variation, after the initial heat of the stored product has been absorbed and removed.

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[1] Taylor, *Yearbook of Department of Agriculture*, 1900, p. 569. (The number now is probably 1000.)

The problem of refrigeration in freight cars is a more difficult problem, however, and has not been so satisfactorily solved as in the case of stationary plants. In the first place, no application of mechanical refrigeration has been devised which can be used in cars, and therefore ice has to be used. Other reasons are that the temperature is higher, the moisture greater, the distribution of cold air less uniform, and the refrigerating power less efficient.[1] As we shall see later, these difficulties have not been entirely overcome in the refrigerator car, although great progress has been made.

Nearly 400 patents have been taken out in the United States with a view to improvement in the refrigerator-car service.[2] The patents cover construction, air circulation within the car, ventilation, the capacity and arrangement of ice tanks, mechanical and chemical refrigeration, and various other subjects. Those that have involved any complicated mechanism have proved impracticable, and those that are in use have been selected with a double view to efficiency in refrigeration and adaptability to the requirements of modern railroading. Anything that delays the movement of trains, or that is beyond the skill of the ordinary brakeman to handle, is clearly out of place.

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[1] Powell, *Yearbook of Department of Agriculture*, 1905. p. 356.

[2] G. Harold Powell in a paper read before the American Society of Refrigerating Engineers. New York, Dec. 4, 1905.

The construction of the latest-improved refrigerator cars, in a few words, is as follows: The roof, sides, and floor are built double, and the space is generally filled with felt or heavy paper so as to furnish as perfect insulation as possible. The ice bunkers are at the ends and extend from the top to within a few inches from the bottom of the car. They are filled with ice from the top where there are two openings, or hatches, for each bunker. Underneath the hatches, there is a tight-fitting plug, which, when forced into place renders the passage of air from the outside practically impossible. When a car is running under ventilation, these plugs can be turned so as to drop down into the bunkers, allowing the free passage of air. In this case, the hatches are left open at an angle of about 45° so as to catch the air, and force it into the car. The Mackintosh ventilator, used on the Santa Fe cars, is a V-shaped metal contrivance which can be opened so as to catch the air, and this is an improvement on the commoner method of merely opening the hatches part way.

The bunkers are partitioned off from the end of the car, sometimes by means of a wooden partition with openings about a foot and a half wide at the top and bottom, and sometimes with an iron grating, covered with overlapping strips of metal, allowing the free circulation of air from all parts of the bunker to the rest of the car. This latter device is called the Bohn Patent, and the best cars are now supplied with it. Under each bunker is a catch-basin for the melted ice, and drain pipes carry this waste through the bottom of the car. The bunkers in the best fruit cars together hold about five tons of ice. Those built for the carriage of dairy products and meats have a smaller ice capacity, some of only a ton and a half, and this constitutes the principal difference between the fruit car and the meat car. In those cars having large ice capacity the bunkers extend in about two and a half or three feet from each end of the car, thus taking up valuable room that might otherwise be used for freight.

In the refrigerator cars in use today, the temperature usually falls to between 40° and 50° F. Perishable fruit is usually loaded into cars direct from the orchard, and its temperature approximates the temperature of the atmosphere. In the South and in the western semi-arid parts of the country it is sometimes loaded at a temperature of 95°. The rapidity with which the temperature of the fruit in the car will fall during transit depends much upon the manner in which the fruit is packed and loaded. If fruit at a temperature of 85° F. is not wrapped, and is placed in fairly open packages,—and if spaces are left between the tiers of packages,—it may cool gradually to between 42° and 50° F. in three days in the bottom of the car. At the same time, the fruit in the top of the car may be 10° warmer.[1] A car of peaches, in which the fruit is wrapped and packed in boxes which are piled closely together, may take twice as long to cool down on account of the insulating effect of the paper and the poorer circulation of air between the boxes. Ordinarily, the temperature in a refrigerator car continues to fall uniformly in transit if the icing is well done. For fruit, block-ice without salt is generally used. In the shipment of meat, it is refrigerated before shipment, and is carried at a temperature ranging from 34° to 40° in transit, the lower temperature being due to the use of broken ice with an addition of about eight or ten per cent of salt.

As we have just seen, the temperature in the upper part of a refrigerator car is generally about ten or fifteen degrees warmer than that in the lower part. As a consequence, the fruit in the upper tiers is sometimes over-ripe when it reaches market, while that at the bottom is in sound condition. In fact, cars are not usually loaded to their full capacity, because it does not pay to utilize the warm upper portion. The fruit in ripening throws off a large amount of heat, and no appliances have as yet been devised which insure a circulation of cold air throughout the whole car and carry off the heat caused by the ripening fruit. Since the fruit is hot when loaded, it ordinarily takes from two to five days to reduce the temperature to a degree of cold that retards the ripening and the decay. During these first two or three days, when the car is warm, the ripening springs forward, and since the atmosphere is moist, the rot often begins to grow vigorously.[1] These are fundamental difficulties in the present method of handling fruit for transportation, and have a far-reaching influence on the development of the trade. The extent of the market is limited by the distance that the fruit in the upper part of the car can be safely carried, even though that in the bottom could stand a few more days in transit. A solution of these difficulties would tend to develop more distant domestic, and also foreign markets, and would obviate the difficulty of having to pick hard and unripe fruit which often reaches the market in an insipid and flavorless condition.

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[1] Powell, *Yearbook of the Department of Agriculture*, 1905, p. 356.

The pomological experts of the United States Department of Agriculture have been investigating this phase of the problem and they estimate that the loss from deterioration of fruit during shipment amounts to over a million dollars per annum for the whole country, and to $500,000 in transporting the California orange and lemon crop alone. They have found that this deterioration is due not only to inferior transportation facilities, but also to mechanical bruises received while picking, sorting and packing the fruit in the orchards. Much progress is being made, however, in minimizing losses attributable to this latter cause.

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[1] Powell, *Problems in the Transportation of Fruit.*

The Department of Agriculture has been experimenting with the cooling of fruit in cold-storage warehouses before shipment, and therein lies a possible solution of this difficulty. Eastern-grown pears for export are refrigerated in cold-storage warehouses alongside the railroad before shipping. Peaches that ordinarily develop considerable decay in the top tiers of packages have been shipped by the Department of Agriculture after cooling to about 40° F., and have reached distant markets in prime condition. In one shipment of 8000 packages less than one per cent of soft and decayed fruit developed in the two upper tiers, while from five to thirty per cent developed in the two upper layers in cars cooled in the ordinary way.[1] In the semi-desert Imperial Valley of California, a cold-storage plant has been erected for the manufacture of ice and for the cooling of cantaloupes before shipment. The melons are often above 100° F., when picked, and they are placed in the warehouse where they are reduced to about 40° before loading. The great objection to this plan is the additional cost of the necessary plant, which may be used only a few months or even a few weeks during the year. The only possible way to meet this expense is to have the plants erected either by large associations of growers, or by the refrigerator-car lines or railroads, and handled as a part of the refrigeration service.

Another method that has been tried for cooling fruit before shipment is to cool it in the cars after it has been loaded, by forcing cold air through an insulated tube from a cold-storage warehouse into the car through the bunker. An exhaust fan draws the air out at the other end of the car.

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[1] Powell, *Yearbook of the Department of Agriculture*, 1905, p. 358.

This has been tried at Los Angeles, California, but has not proved very efficient, because it was found to take from thirty to forty hours to cool the fruit in the center of the packages to 40° F. A more successful application of this same principle is in use in a large cold-storage plant at Springfield, Mo., where bananas in cars are cooled in transit. The plant consists of a shed with four tracks, which will hold forty cars, and the cold air is carried by large air-ducts along the top of the shed, and forced into the cars through canvas tubes. The same plant may be used in winter to raise the temperature of the fruit when desired.[1]

The foregoing considerations tend to show that there is much room for improvement in the handling and transportation of our fruit crops, and as the output of the fruit districts is increasing, the problem of extending the market becomes more and more important. No country in the world has its facilities for handling perishable products so thoroughly developed as the United States. Very little has been done in this direction in European countries. In England, refrigerator cars are used only to a small extent, as the climate there is seldom so extreme as to make them necessary.[2] In France, the matter was looked into by Mr. Wm. A. Taylor of the United States Department of Agriculture in 1900 in connection with the forwarding of the American fruit exhibit to the Paris Exposition in that year. He could learn of but one refrigerator-car line in that country, and that was not much patronized by shippers of other articles than meats and fish. The rail hauls in European countries are so much shorter than in the United States, that refrigeration in transit is much less important than in this country.[3]

[1] Powell, *Yearbook of the Department of Agriculture*, 1905, p. 359.

[2] Letter from W. M. Acworth, London, Eng.

[3] Letter from W. A. Taylor, pomologist in charge of field investigations, Washington, D. C.

The value of having a car thoroughly insulated and carefully constructed so that none of the outside air can penetrate is well illustrated by the temperature of a refrigerator car in the winter time, when it is necessary to keep perishable freight from freezing. Except in extreme cold weather, the temperature in a well-built car may not fluctuate two degrees in ten days. Tests made by the Santa Fe show that while the outside temperature fluctuates 30° to 40°, the inside temperature fluctuates only 4° or 5°. Experiments made by the Burlington demonstrate that in zero weather a well-built refrigerator car will maintain a temperature about 20° higher than an ordinary box car for a number of days. Even the length of time that a car has been built makes a difference in the temperature, for in a new car it is apt to be from five to ten degrees higher in cold weather than in an old one. In extremely cold weather cars have to be placed in round-houses in order to keep the inside temperature from falling below the freezing point. The following table, taken from a copy of instructions issued by the Refrigerator Department of the Chicago, Burlington and Quincy Railroad, shows the temperatures at which it is necessary to place cars loaded with perishable freight in round-houses. Only a few items are selected.

	When loaded in	
	Box cars.	*Refrigerator cars.*
Apples	20° above zero.	Zero.
Cauliflower	20° “ “	“
Eggs	20° “ “	“
Lemons and oranges	25° “ “	“
Peaches	25° “ “	“
Potatoes	30° “ “	“
Strawberries	30° “ “	“
Tomatoes	30° “ “	“

Shipments will stand about five degrees lower temperature when the cars are kept moving than when they are standing. Cars of dressed meat, fish, and dressed poultry are iced with cracked ice and salt the year round, the addition of salt maintaining an even temperature so that there is no danger from freezing.[1] Sometimes cars are artificially heated during cold weather and large oil stoves are generally used for this purpose. About 1903 the Burlington equipped a number of its cars with steam heaters at a cost of about $100 per car, with no extra charge to shippers, and it is the only road that has attempted this. During the winter of 1906-07 it experimented with heating solid trains of refrigerator cars by steam from the locomotive.

The operation of refrigerator cars, either by a private-car company or by a railroad, requires the maintenance of a system of icing stations, an efficient corps of inspectors, and also an adequate system of administrative and accounting machinery.

The placing of icing stations along the route is illustrated by the description of a shipment of oranges from Los Angeles to Boston, given by Mr. Armour in his book.[2] The car is iced before receiving its load, and the placing of the hot fruit in the car causes such a heavy shrinkage of ice that it has to be re-iced before starting on its journey eastward. If passing over the Southern route, the car is halted at Tucson, Arizona, where it is thoroughly re-iced again. The same process is repeated at El Paso and Fort Worth, Texas, at Kansas City, Mo., Galion, Ohio, Hornellsville, New York, and East Deerfield, Massachusetts, making nine or ten times that the operation is necessary. These icing points make necessary the maintenance of ice-houses, and the procuring of sufficient ice sometimes at great expense, especially in warm climates where natural ice is not available. In 1905, Armour claims to have bought more than 120,000 tons of ice in California alone. The refrigerator-car department of the Burlington publishes a list of sixty-five icing stations along the lines of its system; the Rock Island has about fifty.

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[1] These two statements are taken from instructions issued by various railroads for the care of refrigerator cars.

[2] *Op. cit.*, p. 80.

Refrigerator cars require the most constant care and attention, and the railroads issue specific directions to their agents as to their proper handling. In the first place, they have to be kept sweet and clean, for if they become saturated by any offensive odor they are rendered unfit for the carriage of perishable products. Sometimes when a car is being returned for a cargo of perishables it is loaded with commodities which emit odors, and instructions generally include a list of articles which cannot be placed in the cars. For instance, the Burlington includes a rule in its special instructions to agents which forbids the loading of hides, tallow, or grease, Limburger cheese, oil or empty oil barrels, bones or fertilizers, tar or tar-paper, in its refrigerator cars. It also forbids the loading of musical instruments, plated stoves or castings, tin plate, or any freight subject to rust or other damage on account of dampness in the car.

General instructions from the head office also provide for the cleaning of bunkers when necessary, the testing of drain pipes, and the method of handling different kinds of shipments when under refrigeration, under ventilation, or during cold weather. The condition of the cars, the amount of ice placed in bunkers, the round-housing of cars, *etc.*,—all these things have to be carefully recorded by the agent and sent on prepared forms to the head office. Sometimes a messenger accompanies the cars to see that all these things are properly attended to. The car-line agents and inspectors are stationed at all important points to look after the movement of cars and to make reports to the head office. In the case of railroads owning their own cars, many of these duties are attended to by regular freight agents, but it has been found necessary by those roads operating an extensive equipment, to maintain a separate corps of inspectors for this branch of the service on account of its specialized character. The Santa Fe, for instance, maintains such a corps of agents for the proper handling and care of its refrigerator equipment.

The transmission of the various reports to the head office requires a careful system of recording and accounting in this office, and consequently a large corps of clerks. For instance, let us glance at the organization of the Armour Car Lines, the largest and most important company in the country. Its main offices in Chicago are divided into two parts, which may be called the administrative and the car-accounting departments. The administrative department is situated in the same building with the general offices of Armour and Company. Here the general policy is laid down, icing charges are fixed, claims are adjusted and settlements made. In the car-accounting department, which is located in the Union Stock Yards in Chicago, the movement of cars throughout the country is recorded, and the system is so complete that the whereabouts of any particular car of the 14,000 operated can be ascertained at any time. For this purpose reports are made by agents stationed at the principal junction points, and sent by mail on postal cards which are printed according to a certain form and distributed by the head office. They show the number of the car, the time of passing a certain point, the road it is traveling over, the place of loading, destination, and routing. At the office in Chicago a separate record is kept for each trip that a car makes, and the forms used for this purpose are filled out as returns from the agents are received. When a car has finished its trip there is thus a complete record of its journey from starting point to destination. Any question regarding claims, mileage, contents of car, or any other information may therefore be settled by reference to these records, which are filed away and kept for three or four years before they are destroyed. Some of the railroads operating refrigerator cars utilize the telegraph for reports from agents, and oftentimes these reports are most complete, including condition of car, quantity of ice in the bunkers, *etc.* Instructions issued by the general offices are often very specific and cover a great variety of details.

CHAPTER II

THE PART THAT SPECIAL-EQUIPMENT CARS HAVE PLAYED IN THE DEVELOPMENT OF THE COUNTRY

IN defense of private cars, general statements have often been made to show the wonderful things they have done in the development of certain industries, such as meat packing and fruit and vegetable growing; the opponents answer that it is not necessarily the *private* car that has done all this, but that it is the *refrigerator* car, whether owned by private individuals or by the railroads. Inasmuch as private concerns built the first refrigerators, and the railroads for years refused to furnish this equipment, the defenders of private cars have more or less reason for their claim. It is our purpose, however, to study the effect of the special-equipment car itself on the development of the country, and to disregard for the present the question of railroad or private ownership. Little has been written on this phase of the question, and it is not generally realized what a tremendous factor these cars have been in the economic and industrial history of the country.

Of the various kinds of special-equipment cars, by far the most important is the refrigerator car. It has revolutionized the livestock and dressed-beef industries; it has made it possible to transport fruit and vegetables across the continent and across the ocean, and has therefore resulted in the development of certain sections of the country which would have otherwise remained poor on account of their distance from market. Some of the most important changes it has brought about we shall now consider.

EFFECT ON BEEF-PACKING INDUSTRY

As we have seen before, meat, in early times, was furnished by local slaughter-houses and the live animals were either shipped in the ordinary cattle cars of the railroads from the West to the Atlantic seaboard, or raised locally. There were extensive stockyards and slaughter-houses in all the principal cities of the East, and the carriage of live animals was an important item in the traffic of the trunk lines. During the seventies, as we have seen, dressed beef began to be shipped from Chicago to eastern markets in refrigerator cars.

It is easy to realize what great economies were made possible by this change. The weight of edible beef derived from a steer is only 50 to 57 per cent of the entire weight of the animal. In those early days, all the rest was absolute waste, and the slaughter-houses even paid sometimes to have it carted away. In other words, shipment of cattle meant the payment of freight on a steer weighing 1000 pounds in order to get about 550 pounds available for market. Furthermore, there was a deterioration in the value of cattle after a carriage of 1000 to 2000 miles in cattle cars; many became sick and died en route, there was always a considerable shrinkage in the weight of the animals, and the general quality of their meat was impaired. These economies were readily recognized and the shipment of dressed meats became general. As a result of this, the great packing centers of the Middle West began to spring up, and consequently the slaughtering of cattle in the East began to fall off. The following figures demonstrate this tendency:

TOTAL VALUE OF MEAT PRODUCTS FROM SLAUGHTERING AND PACKING.[1]

	1880.	*1890.*	*1900.*
Boston	$7,096,777	$2,782,823	$1,392,010
New York	29,297,527	50,251,504	38,752,586
Chicago	85,324,371	203,606,402	256,527,949
Kansas City	965,000	39,927,192	73,787,771

At one time, Chicago was near the borders of the cattle-growing districts, and the short haul to that point soon made it by far the greatest livestock and packing center in the country. The cattle-raising country gradually extended farther and farther westward and the Chicago packers followed this westward movement by erecting plants at Kansas City, Omaha, St. Louis, St. Paul, St. Joseph, and even followed the industry to Texas, and built great plants at Fort Worth. This shifting of the meat-packing centers was made possible by the use of the refrigerator car.

The westward movement of the cattle-raising industry itself has likewise been made possible by the refrigerator car. In the early days, when live cattle were shipped, the distance from west of the Missouri River to the Atlantic Coast was too great, and the expense of marketing the cattle too high, to make the raising of livestock profitable. With the introduction of refrigerator cars, the utilization of the vast grazing districts of the West was made possible. Thus, not only is the entire dressed-meat industry dependent on the refrigerator car for its existence, but also the raising of livestock has been extended, and many states have been developed and made wealthier through its use. As the Census of 1900 says:[2] "The importance of artificial refrigeration to the meat trade would be hard to overestimate. The most important step in the development of American beef as an article of commerce, was the invention of the refrigerator car by William Davis of Detroit."

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[1] *Twelfth Census of the United States*, vol. ix, p. 391.

[2] Vol. ix, p. 416.

EFFECT ON AGRICULTURE

Fully as important as the part that the refrigerator car has played in the development of the meat-packing industry, is its effect on agricultural development, in connection with both fruit and vegetables. It was not very long ago that fruit was raised only on a small scale, as it had to be consumed locally, and could not be transported for any considerable distance. Fruit could be had at any given place only at the time it ripened locally, and any that was brought by express or other means a little before or after the short season of three or four weeks was very expensive and considered a great luxury. As a result of refrigeration in transit, these conditions have all been changed: fruit is carried from most remote sections of the country to the large cities throughout the year, and instead of being considered a luxury, it is looked on as a staple article of food. As Mr. Armour says in his book on private cars: "The operation of private fruit refrigerator cars has changed the growing of fruits and berries from a gamble to a business, from a local incident to a national industry." Few people realize what an enormous business fruit growing has become under the impetus given it by refrigerator cars, and not even the Department of Agriculture has adequate statistics on the fruit crop, which Mr. Armour estimates at about $400,000,000 a year.[1] In 1899 the principal fruit-growing districts of the country shipped under refrigeration only 9,164 cars; in 1905 the same districts shipped 42,982 cars. This gives some idea of the rapid growth during the past few years.

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[1] Armour, *op. cit.*, p. 93. (This estimate is undoubtedly too high. The *Census* of 1900 placed the figure at $130,000,000, but owing to the imperfect returns, and the increase since that time, this figure is much too low.)

California offers perhaps the best illustration of the development of fruit growing through the use of the refrigerator car. It is the greatest fruit-producing state in the country, it is situated at the greatest distance from the important markets, and it therefore depends particularly on transportation facilities. The first carload of 300 boxes of oranges is said to have been shipped in 1876. This was not under refrigeration. Ventilator cars were used for a number of years, and fruit grown on the uplands, where it was dry, carried fairly well, even as far east as New York and Boston. Solid fruit trains of ventilator cars were run on express schedules from Sacramento to Chicago for a number of years, and by 1886 shipments had reached 1000 cars per annum. In his book *The Modern Farmer*, Mr. E. F. Adams tells of the first attack on eastern markets with deciduous fruits from California; fresh fruit was shipped in ordinary freight cars attached to passenger trains at a cost of $1400 for ten tons, or seven cents per pound. In contrast to this, he says that in 1894 this trade had increased to over 7000 cars, at a cost of one and one-fourth cents per pound.

It was not until 1887 that the refrigerator car made its appearance in California and Mr. F. A. Thomas as already stated was probably the pioneer in this direction. After he had demonstrated that fruit could be shipped successfully to Chicago, growers were induced to use the cars, and the experience of 1888 proved beyond all question the usefulness and practicability of the refrigerator car when properly handled. Deciduous fruit was first shipped this year under refrigeration from California, a carload of ripe apricots and cherries being successfully sent to New York without reicing. The facilities for transportation under refrigeration were very crude in those days, and there was not what could be called a re-icing station all the way from California to Chicago. These early shipments were generally made by filling a car with small allotments from different places, but with the development of larger plantings regular shipping points were established so that small growers received the same advantage as large shippers, except in the matter of carload rates. Later, associations of growers removed this disadvantage from the small farmer.

A review of the different refrigerator-car lines engaged in this early California business has been given in another place. Up to 1900 there were five competing car lines running to California, and scarcely a year passed without complaints on account of a shortage of cars[1] at some time during the season, with consequent loss to the growers. The competition between these lines led to the payment of excessive rebates on the refrigeration charges to the largest shippers in order to induce them to use certain cars. This was eminently unfair to the small producers, and had a demoralizing influence on the fruit-shipping business. In 1900, the Southern Pacific Railroad made an exclusive contract with the Armour Car Lines, whereby it promised to use nothing but Armour Cars, and in return for which the Car Lines promised to provide a sufficient number of refrigerator and ventilator cars to all shippers on equal terms.[2] Without discussing in this place the arguments for and against exclusive contracts, it may be said that the service since the making of this contract has been more efficient; there has been an adequate supply of cars, and rebates have ceased. The season of 1906 perhaps offers an exception to this statement, in that there were complaints from shippers that they were not able to get enough cars. Railroad men in Chicago have expressed their opinion to the writer that this was probably due to the fact that the Harriman Lines had recently ordered equipment to supplant the Armour Lines, and that since 1906 was the last season the private company could operate, it was taking no pains to give adequate service.

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[1] Geo. B. Robbins in testimony before House *Committee on Interstate Commerce*, Feb. 13, 1905.

[2] The terms of this agreement may be found in the testimony of Geo. B. Robbins before the Senate *Committee on Interstate Commerce*, May 16, 1905.

There has been almost an equal division of this fruit traffic between the Southern Pacific and the Santa Fe Railroads during the last few years, the former operating in the northern part of California, and the latter in the southern, with but comparatively little chance for competition. The rivalry has been very friendly where there has been competition, and neither road has attempted to any extent to invade the territory of the other. The relations between the Harriman interests and the Santa Fe, recently made public, may possibly explain this friendliness to a certain extent. The movement of oranges and lemons from California for the last few years has been as follows:[1]

Date.	*Carloads.*
1894-95	5,575
1895-96	6,915
1896-97	7,350
1897-98	15,400
1898-99	10,875
1899-00	18,400
1900-01	24,900
1901-02	19,180
1902-03	23,871
1903-04	29,299
1904-05	31,422
1905-06	27,610

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[1] *California Fruit Grower*, Dec. 22, 1906.

The thirty thousand carloads of fruit shipped during the season of 1904-05 amounted to over 10,000,000 boxes, valued in California at $27,000,000. Figures furnished by the Santa Fe Refrigerator Despatch Company show the increasing amount shipped each year in its cars under refrigeration, as compared with merely ventilation:

Year.	*Percentage under Refrigeration.*
1897-98	22%
1898-99	17%
1899-00	28%
1900-01	47%
1901-02	33%
1902-03	48%
1903-04	40%
1904-05	51%

The reason for there being so many shipped under ventilation alone is that the citrus-fruit shipments, which we are considering at present, are made almost entirely during the cold half of the year. The use of refrigeration is increasing, however, even in those months. The extent to which refrigeration is supplanting mere ventilation will be brought out more clearly in connection with the shipment of vegetables from California. Over 90 per cent of the deciduous fruit, which is shipped during the summer months, goes in refrigerator cars under ice.

Before leaving California, it will be well to glance at the deciduous-fruit industry. The development of this, although not so phenomenal as that of citrus fruit, has been remarkable. In 1895 it amounted to 4,568 carloads, in 1901 to 7,136 carloads and in 1905 to 8,224 carloads.[1] For 1905 the shipment of deciduous fruits by varieties was as follows:

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[1] *California Fruit Grower*, Dec. 22, 1906.

Fruit.	*Carloads.*
Apricots	279
Cherries	79
Grapes	1,602
Peaches	1,946
Pears	1,013
Plums	1,391
Various	1,914
Total	8,224

From the various figures given above, it will be seen that the fruit industry in California is still in its infancy; that it did not begin to assume any great importance until twenty or twenty-five years ago; and that in that time it has developed rapidly. Its fruit now reaches every town of importance in the United States and Canada, as well as many European and other foreign markets, and has been a factor in the decline of fruit raising in foreign countries, especially in the growing of oranges in Southern European countries. Furthermore, it is safe to say that no such expansion of the business could have taken place without the refrigerator car.

Georgia is one of the most important peach-growing sections of the country. In his annual report for 1875, Mr. Thos. P. James, Commissioner of Agriculture of Georgia, speaking of possibilities in fruit culture in that state, said:

> By the twentieth of June, Georgia might place on the markets of the large cities of the North a million bushels of the most delicious peaches, and have virtually a monopoly of those markets for one month. . . . With one-half the labor and expense now bestowed upon the culture of cotton, which sells at the cost of production, our farmers might secure millions of revenue from the sale of fruits.

Thus was it realized what was possible if there were efficient means of getting fruit to market.

Georgia[1] began raising peaches for local markets soon after the Civil War. In 1876 the present Georgia State Horticultural Society was organized, and it at once became active in encouraging fruit culture, and in studying means to get the product to distant markets. In 1877, a few peaches were sent to New York by express, and one shipper received $10 per bushel, which was about 16 cents for each peach. This fruit was picked ripe and packed in live moss. In 1879 refrigerator boxes, sent by express, brought fairly good returns. In 1880 peaches were shipped to northern markets by freight for the first time,—by rail to Savannah in stock cars, and thence in the refrigerator compartments of the steamers of the Ocean Steamship Company to New York. It was not until 1882 that the railroads began to furnish refrigeration in transit. The Central Railroad of Georgia converted a few box cars into so-called refrigerator cars to run from the fruit district to Savannah. The only change in the construction was the placing of a trough-shaped wooden ice chamber longitudinally through the car, which was filled with ice, and the fruit was loaded around it. The same year, the "Austell" refrigerator car made its appearance. This was similar to the modern refrigerator cars, except that it had over-head ice chambers. For the next two or three years, the fruit crop was a failure on account of late frosts, but with the transportation problem solved the fruit acreage increased rapidly, and by 1889 the refrigerator car was in general use.

The history of the fruit industry in Georgia reveals a number of disastrous years when sometimes there was not a carload of peaches shipped from the state on account of crop failures. In 1889 there had been over 150 cars shipped over the Central of Georgia Railroad, which handles the bulk of the fruit crop. 1890 and 1891 were disastrous years; 1892 and 1893 good years with 250 cars the latter year; and by 1895 there were 743 cars handled. Some difficulty was experienced in procuring a sufficient number of refrigerator cars, and also in procuring ice for them. At this time there were five competing refrigerator-car companies in the field. In 1898 the Central of Georgia, apparently with the consent of the growers, made an exclusive contract with the Armour Car Lines, and since then the peaches of Georgia have been handled only in Armour cars. In that year there were 1733 cars shipped. Since 1898 the crop has increased to about 5,000 cars per annum.

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[1] *A History of the Peach Industry in Georgia*, compiled by the Central of Georgia Railroad.

The peach district of Georgia which was originally confined to one county, has spread practically over the entire state. New orchards are being planted every year, and indications are that the industry is still in its infancy. Fruit lands have increased in value in some cases from as low as one dollar an acre to about $300 an acre. It is easy to see from this review of the peach industry in Georgia, what a prominent part the refrigerator car has played.

The Michigan fruit belt, which extends north and south along the eastern coast of Lake Michigan, is an old district, and the fruit business there has not increased by leaps and bounds under the present influence of the refrigerator car, as it has in other sections, which are situated farther from important markets. For years the crop was dumped into Chicago and Milwaukee by steamer across the lake, with a resulting glut in these markets, and low prices. In fact, commission men in Chicago made handsome profits by reshipping the peaches to eastern markets, before the cars invaded the territory itself. The first attempts to handle Michigan peaches under refrigeration were made in 1889 by Mr. F. A. Thomas, the pioneer in the California business. As a large part of the producing territory was not easily accessible to railroads, Mr. Thomas[1] leased for the season portions of the holds of two steamers plying between Saugatuck, Mich., and Chicago, a distance of about 90 miles. The compartments in these steamers were cooled. so that the fruit was in good condition when it reached the wharf in Chicago, where it was loaded into refrigerator cars, and then transported to distant markets. This rehandling was however, expensive, and injured the fruit, so that it has not since been attempted on a large scale.

As the Michigan district is so far north, and since the crop does not ripen until in September and October, there is not so much need of refrigeration as in the case of the districts lying farther south. Mr. Robbins, President of the Armour Car Lines, made an estimate in 1905, that about one-third of the shipments from the state were made under ice. Prior to 1900, however, refrigeration was hardly used at all, and the more extensive use of refrigerator cars, which have invaded the state in the last few years, has brought important benefits to the growers. With the refrigerator car came eastern buyers; the market was greatly extended, and prices rose; acreage increased; land values grew from less than $25 per acre before development for peach growing, to $250, $300, and even more, with bearing peach orchards. Great quantities of fruit are still shipped to Chicago by steamer from districts not accessible to the railroads, and prices in that city are consequently lower. Mr. Armour, in his book on private cars,[2] tells of the experience of representatives of eastern fruit houses who came to Michigan to buy. At the points served by private cars they found competing buyers, but discovered that great quantities were being sent to Chicago by steamer from

[1] Taylor, *Yearbook of Department of Agriculture*, 1900, p. 576.

[2] Page 98.

places not served by the railroads. They forthwith went to Chicago, and bought Michigan peaches on the open market in South Water Street for shipment east, at lower prices than they would have had to pay over in Michigan at points served by refrigerator cars. This happened as late as 1904. Another instance is that of a grower of Shelby, Michigan, who shipped plums to two points, Chicago, Ill., and Dayton, Ohio. Those sent to Chicago brought 80 cents a bushel; those to Dayton, $1.45 a bushel.

The Armour people have handled the bulk of the Michigan fruit, and deserve credit for having stimulated the business, by acquainting eastern buyers with conditions, and bringing them to the state where they buy direct of the grower. In 1902 Armour made exclusive contracts with the Pere Marquette and the Michigan Central, and for two years handled all the traffic originating on those lines. The complaints that arose in connection with these exclusive contracts will be discussed in a later chapter. Besides peaches, Michigan also raises large quantities of plums, strawberries, apples, pears, melons, and grapes, and is shipping an increasingly large number of these fruits to points outside the state. In 1900, there were 4,360 cars of peaches shipped, and in 1904 the number had risen to about 8,000. This notable increase in the number of cars does not necessarily show a corresponding increase in the fruit industry of the state, but is rather an evidence of the more extensive use of refrigerator cars, as compared with shipments by steamer.

Thus we have traced the development of what may be called the three principal fruit-growing districts of the country, and have noticed the dependence of this development on the refrigerator car. Since the introduction of this means of transportation, however, and more especially within the last ten years, there have been other districts which had never grown fruit to any extent, but which have now begun to come into prominence. The extent of this wholesale development of fruit lands may be shown by giving a few more examples.

The cultivation of strawberries offers a good illustration. But a few years ago, the length of time that strawberries were in the market at any one place was very short, as they are of an extremely perishable nature, and cannot safely be carried longer than twenty-four hours without being iced. The largest producing areas were those near the great markets, as in Maryland, Michigan, Ohio, and New York, and in 1899 those four states produced more than any others. With the perfection of the refrigerator car, however, strawberries began to move from the Southern States at the time of ripening there, and are now commonly seen on the fruit-stands of the northern cities in mid-winter. This has led to the rapid development of strawberry plantings in certain sections of the South, the most important ones being in the Carolinas, Florida, Arkansas, Tennessee, and Missouri.

Strawberries were first shipped from Florida to New York under refrigeration in 1888, but this traffic did not assume much importance until within the last five or ten years. North Carolina is now the most important of these southern districts, while fifteen years ago the crop there was almost nothing. A few berries were shipped at first by express in refrigerator chests, and many continued to be shipped in this way even after the advent of refrigerator cars. Shipments by express and by ventilated cars have been superseded by the use of this more modern device, as illustrated by the following figures: traffic carried[1] from North Carolina in refrigerator cars increased from 1897 to 1900, 152 per cent, while that carried by express companies increased only 31 per cent and that forwarded by ventilator cars decreased 82 per cent. As a net result of these changes the proportion of the whole traffic carried in refrigerator cars in 1900 was 80.7 per cent while in 1897 it was only 67 per cent. Since then the proportion carried in refrigerator cars has increased still further, until now it is over 90 per cent.

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[1] *Twelfth Census of U. S.*, vol. vi. p. 305.

Fifteen years ago the shipments from North Carolina were unimportant, in 1897 they amounted to about 500 carloads and in 1904 to over 3000 carloads. Since the season lasts only a month, this meant 100 carloads a day. Chadbourn, N. C., did not ship a carload ten years ago, but is today the largest berry-shipping point in the United States. The Atlantic Coast Line carries the bulk of this Carolina business, and since 1898 Armour cars have been operating over this road under an exclusive contract. During the early nineties, three or four other companies had been competing for the business, the service was not reliable, and it was on the recommendation of the growers themselves that an exclusive contract was given to Armour. In 1905, shipments increased at one time to 200 cars a day, and there was a shortage of cars owing to poor handling of empties and freight blockades, with a consequent loss to the shippers of thousands of dollars. As a result of this, Armour settled claims for $75,000.[1]

Florida has, of course, derived great benefits from the development of modern transportation facilities, but this state has never fully recovered from the freeze of the late nineties, and has been overshadowed by California in the production of subtropical fruits. Florida has the advantage of being the farthest south, and consequently is able to take advantage of the high prices paid for the earliest shipments. This fact, together with the destruction of so many of the orange trees, has led to a diversification of crops, the principal of which are strawberries, grapefruit, peaches, and pineapples.

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[1] G. B. Robbins in testimony before Senate *Committee on Interstate Commerce*, May 15, 1905.

The railroads, through their industrial commissioners and their refrigerator-car departments, have aided in developing certain sections along their lines and have advertised them by means of descriptive pamphlets which have been distributed broadcast. Texas, especially, is at present being advertised by the roads entering that state. Many out-of-the-way places in the Western States, where a few years ago it was never thought that it would pay to raise fruit on a large scale, are now sending carloads of perishable orchard produce to the eastern markets, with resulting prosperity among the farmers, and increasing land values. States that have been benefited in this way are Utah, Arizona, Idaho, and Arkansas (where the Ozark region deserves special mention for its apples and peaches). The far Northwest now sends to market from 2000 to 3000 cars of fruit a year, and the northern routes across the continent have efficient refrigerator equipments of their own. The State of Washington, especially, is coming to the front in the raising of apples.

EFFECT ON VEGETABLE GROWING

The transformation of industries brought about by modern methods of transportation, is nowhere more clearly evidenced than in vegetable gardening. Until the latter half of the last century, vegetables were grown within a short distance of the market for which they were intended, and could be supplied only during the brief period when the several products were locally in season, except that small quantities were produced under glass. The location of the first truck farms was determined by proximity to water-transportation facilities; thus one of the earliest centers for this business was along the shores of Chesapeake Bay, where fast-sailing oyster boats were employed for sending the produce to the neighboring markets of Baltimore and Philadelphia. Likewise the gardeners around New York began pushing out along Long Island, using the waters of the Sound for transporting their produce. The trucking region on the eastern shore of Lake Michigan is another example of the effect of convenient water transportation in causing the early development of farming on a large scale.

From these centers, the industry gradually began to spread southward, *pari passu* with the development of transportation facilities. In the early fifties, the raising of vegetables for northern markets began around Norfolk, Virginia, and in 1854 the first cargo of 200 barrels of garden truck was carried from this port by steamer to New York. To secure proper ventilation it was necessary that these should be carried on deck so that only a small load was possible until efficient means of ventilation were devised. The first all-rail shipment from Norfolk to New York was made in 1885, and with the use of the ventilator car, and later of the refrigerator car, the area of production began to extend rapidly southward and westward. Charleston and Savannah soon became centers of important trucking regions, and then came the whole state of Florida. The development in this state has been very recent; from one section which raises lettuce, celery, pease, beans, and cucumbers, the shipments increased from about 100 cars in 1898 to over 800 cars in 1904.[1] Extending northward and westward from Florida are the watermelon region of

[1] Testimony of T. B. Felder before House *Committee on Interstate Commerce*, Feb. 16, 1905.

Georgia and the trucking districts around Mobile and New Orleans. Texas is now being developed and this state, on account of its remarkable soil and climate, gives promise of becoming one of the greatest, if not the greatest, vegetable-growing states in the country.

A development analogous to this has also taken place in the districts around Chicago. With the building of the Illinois Central, the region in Southern Illinois was first opened up. From this point the business has gradually extended to Tennessee, Missouri, Mississippi, and Arkansas. About seven or eight years ago fifty cars of tomatoes were shipped from Humboldt, Tennessee, during a season. These had to be shipped green, and ripened in the commission man's store room, thereby impairing the quality. This point now ships over 500 cars a season, the tomatoes are allowed to ripen on the vines, and therefore bring much better prices.[1] Crystal Springs, Mississippi, has long been the greatest tomato-shipping point in the world. The industry began there about 1875, and in 1885 it was shipping from five to eight cars a day. In 1895 the number had increased to between forty and fifty cars a day.

The extension of truck-growing districts has also spread to the West and even as far as California. Shipments of vegetables from this state to eastern markets for the past few years have been as follows:

Year.	*Cars.*	*Percentage of total carried by Santa Fè under refrigeration.*
1897-98	738	18%
1898-99	870	25%
1899-00	1,530	50%
1900-01	1,918	69%
1901-02	2,181	67%
1902-03	2,076	72%
1903-04	2,230	84%
1904-05	2,263	90%

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[1] Armour, *op. cit.*, p. 93.

The last column of figures shows to what an extent shipment under refrigeration has supplanted that under ventilation, and shows furthermore that practically the entire crop is now carried under ice. Other sections west of the Mississippi have also sprung up, such as the Ozark Mountain region in Arkansas, certain districts in Iowa, and Kansas, and the irrigated territory of the Arkansas Valley in the eastern part of Colorado, where the famous Rockyford cantaloupe region is located. The development of this region illustrates so well the influence of refrigerator cars, that a short review of its history is instructive.

The Rockyford cantaloupe was first grown for markets at Rockyford, in the southeastern part of Colorado, in 1885, and for years it was raised on a small scale and sent only as far as Denver, Pueblo, and other cities within easy reach. In 1894 the growers coöperated and shipped for the first time in carload lots. Transportation facilities were not adequate for the handling of the crop, and the adjacent markets were flooded with melons, with consequent loss to the farmers. It was not until 1897 that shipments were made as far east as New York, by means of the refrigerator car. This expansion of the market was immediately attended by an increase of the business, and the Rockyford soon became famous in the eastern markets for its thick flesh and delicious flavor. In 1897 there were 121 cars shipped from the Rockyford district; in 1904 the number had increased to 1,182. In the same time land values had increased from five dollars to $100 and $150 per acre. It is not to be inferred that the prosperity of this section is due entirely to the use of the refrigerator car, because the raising of melons would have been impossible without irrigation. When the lands of the Arkansas Valley were first irrigated, alfalfa became the principal crop, and naturally contributed to the advance in land values. The enormous increases in values, as cited above, were, however, due to the growth of the melon industry, which, in turn is dependent on the facilities for transportation to distant markets.

Prior to 1897, the high prices and limited supply made the cantaloupe a great luxury, and it was too expensive for the ordinary grocer to handle. New York had been supplied for years with an inferior melon, mainly from Maryland, Delaware and New Jersey, and the season lasted but a few weeks. When the superior qualities of the Rockyford became known, other districts all over the country began to raise it—principally Florida, Georgia, the Carolinas, Texas, and California. The result of this expansion of the growing area is that New York is now supplied with melons from early in May until late in October. The earliest shipments come from Florida, and then from districts farther and farther north as the season advances. The cantaloupe is a highly perishable commodity and requires careful handling and supervision in transportation. It thus furnishes, perhaps, one of the most striking examples of the change that has been wrought by the refrigerator car on our agricultural development. In 1897 the amount consumed in the United States was not over 400 carloads. This amount gradually increased until during the year 1905, 6,920 carloads were used throughout the country, and the season for cantaloupes has changed from a period of less than two months to six months of carload business.[1]

The consumption of those vegetables which are the most perishable has shown the greatest increase under the influence of refrigeration in transit. For instance, not more than seven or eight years ago, one car a day of head-lettuce was sufficient to supply the New York market. Now, New

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[1] *Development of the Rockyford Cantaloupe Industry*, by P. K. Blinn. Bulletin 108, Colorado Agr. Experiment Station.

York alone uses forty to fifty cars a day during the winter months. Many vegetables of this nature were formerly raised at great expense under glass near the large cities, so as to take advantage of the fancy prices that could be obtained early in the season. The competition of southern districts, however, has forced many of these hot-house cultivators out of business. Celery, cauliflower, asparagus, and cabbages, are shipped to a great extent in refrigerator cars. The Illinois Central long ago earned the sobriquet of "the cabbage route" from the fact that it was moving trainloads of cabbages north daily during spring and early summer, and equally large quantities south during fall and winter. The need of refrigeration for asparagus is illustrated by a recent occurrence in Chicago. A car came to that city loaded with asparagus, and through some mistake no ice had been placed in the bunkers. As asparagus is packed in damp moss, it was found on opening the car that the asparagus stalks had grown a foot, and were unfit for market. The principal celery-growing district of the country has always been around Kalamazoo, Michigan. Now celery is grown in California and in some of the Southern States. In 1904 an island in the San Joaquin River in California began to raise celery for eastern markets. In that year it shipped eight carloads, in 1905, forty carloads, and in 1906, 400 carloads, at a profit of seventy-five dollars an acre. Not one pound of this could be shipped if it were not for refrigerator cars.

In the shipment of the more hardy vegetables, refrigerator cars are used perhaps even more in winter than in summer, in order to keep them from freezing. Potatoes, for instance, are being shipped in this way more and more every year. Vegetables grown for export are more apt to be sent under refrigeration than those destined for domestic markets. In fact, the demand for refrigerator cars for the shipment of vegetables of all kinds is increasing rapidly, and judging from the comparatively recent origin of this business, and its growth during the last few years, it may be considered as still in the early stages of its development.

Another important class of commodities, the transportation of which over great distances is largely dependent on refrigerating facilities, is dairy products, which include principally butter, cheese, eggs, milk, and dressed poultry. In fact, the refrigerator cars operated by the Pennsylvania Railroad, numbering about 3500, are used almost entirely for this business. Their ice capacity is not so great as that of the ordinary fruit car, and at certain times of the year, when fruit shipments originate along the Pennsylvania Lines, especially in Delaware, the traffic has been handled in Armour cars, although not under an exclusive contract.[1] The cars of the Merchants' Despatch Transportation Company, the line operating over the New York Central Lines, are also intended primarily for this kind of traffic. The growth of dairy farming in Wisconsin, Iowa and Nebraska, as well as in other western states, has been due in a great measure to these superior facilities for getting goods to eastern markets.

A single illustration of this development will suffice. Ex-Governor W. D. Hoard of Wisconsin, speaking before the Wisconsin Dairymen's Association[2] in 1900, told of the early history of the industry in that state. In 1873 there were about a million dollars' worth of dairy products in the state; somewhere in the neighborhood of forty cheese factories struggling in a feeble way; no creameries, and few private dairies. It was costing two cents and a half a pound to ship cheese to New York City in ordinary box cars, and the channels of commerce were blocked to Wisconsin dairymen, as they had to send their products to Chicago, and then have them reshipped to eastern markets. About that time Mr. Hoard interviewed Mr. W. W. Chandler, the originator of refrigerator cars on the Pennsylvania Railroad, and induced him to send some of his cars to Wisconsin. Mr. Chandler himself went to the principal shipping points, and explained to the dairymen the whole system of refrigeration as it was understood in those early days, and offered a rate of one cent a pound in iced cars to New York City. The business immediately began to grow. In 1876, at the Centennial, Wisconsin men took the first premium on their cheese. By 1890, many farmers had turned their attention from wheat farming to dairy farming, and the state was sending large quantities of butter and cheese to the Atlantic seaboard, some to be used there, and some to be sent to England. In 1900, it was estimated that the dairy products of the state had an annual value of $35,000,000, and land values had increased from eighteen dollars to between sixty and eighty dollars an acre.

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[1] Armour, *op. cit.*, p. 269.

[2] *Twenty-eighth Annual Report of the Wisconsin Dairymen's Association*, 1900.

EFFECT ON PRICES

We have now reviewed some of the more important phases of our agricultural development, which have been dependent on the refrigerator car. It is also interesting to notice the effect of this development on prices of agricultural produce. Statistics of the prices of fruits and vegetables are meager for two reasons: first, because a national market has but recently supplanted local markets for these goods, and second, because there has been so much irregularity in the size of packages that uniform price quotations in the majority of cases have been next to impossible. Although the size of packages still varies to some extent in different parts of the country, yet there has been much progress in attaining uniformity for the most important products. Furthermore, price statistics over a series of years would tell but little in the case of fruit, especially, because the crop varies to such an extent with climatic conditions that the fluctuations in prices from year to year are enormous.

Some general tendencies in the prices of fruits and vegetables may, however, be noticed as a result of improved transportation facilities. These are: first, a greater stability of price in any particular market; second, a general leveling of prices throughout the whole country; and third, a general raising of prices for the growers situated at a distance from the large markets.

As to the greater stability of prices over a more extended time, it is well known that the price of a perishable commodity is high when it first makes its appearance in the market and that it gradualy falls, sometimes to a very low level at the height of the season, and then rises again as the season wanes. Before the advent of refrigerator cars, these fluctuations in prices were much more extreme than they are now, and covered a shorter period. Any particular market could be supplied with such an article only at the time of year that it ripened in the vicinity of that market. For instance, take strawberries in the City of New York. The first berries that reached the city were either those raised under glass, or sent from Delaware or New Jersey by express at great cost, and these naturally obtained fancy prices paid by the wealthier classes. When the berries began to ripen locally and on Long Island, the price fell rapidly, and often reached a point so low as to be unremunerative to the growers and the season came to an end abruptly with the last of the locally-grown berries, having lasted approximately six weeks. With the use of the ventilator car, the area of production was extended slightly and berries began to arrive a little earlier. Then came the refrigerator car, and the consequent development of the vast strawberry fields of the Carolinas, Georgia, and Florida. Berries now begin to arrive in mid-winter from Florida. The first ones command a high price, to be sure, but by the end of the winter months the price falls to a point within reach of large classes of people, and remains comparatively stable until the berries ripen locally. After these have passed, small quantities of berries continue to find their way to market from more northern sections, and the price gradually rises again. Thus the season for strawberries has been increased from about six weeks to over six months, with the prices fairly uniform a large part of the time, and within reach of all but the poorest classes. It is evident that this result has been brought about through the extension of the producing area, which in turn, has been made possible by the refrigerator car.

The second tendency, the leveling of the prices of perishable commodities throughout the whole country, is due to the extension of the market area. When each fruit-growing district, for example, was dependent on the nearest city for the sale of its products, the market was very limited, and there was no relation between the different markets of the country. For instance, Chicago might be flooded with peaches at very low prices, while, at the same time Boston might have but few peaches at high prices.

Prof. Marshall,[1] in discussing markets and their effect on the equilibrium of demand and supply, divides commodities into two classes,—those having a national and even international market, such as the securities of corporations and the precious metals, and those having but a limited market, such as perishable and bulky goods. He says,

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[1] *Principles of Economics*, 3d ed., p. 406.

"There are indeed wholesale markets for the second class, but they are confined within narrow boundaries; we may find our typical instance in the sale of the commoner kinds of vegetables in a country town." When Marshall wrote this, vegetables undoubtedly were a good example for his purpose, but within the last few years the vegetable market has been so widely extended, especially in the United States, that the illustration is no longer applicable. Today the market in this country for vegetables and fruits is almost a national one, and may even be called an international one, and the different sections of the country are in such close contact, that there is a general equalization of the supply according to the demand, and consequently a fairly uniform price level throughout the country. Of course the adjustment is not by any means perfect, but by constantly studying the markets, growers ship their products to that point offering the largest return. Oftentimes prices fluctuate, and a market becomes glutted while a shipment is in transit. The shipper can then telegraph ahead to some junction point, and have his car diverted to some other point. Armour says that in 1904, during the month of July, more than 500 cars of Georgia peaches were caught at Cincinnati alone,[1] diverted from their original destination, and sent to other places where the prices were higher. In this way, markets react on one another, and by the control that the grower has over the destination of his products, there is a general leveling of prices throughout the whole country.

The third effect on prices, the raising of prices for the growers, is evident in many instances. There are some minor exceptions to this tendency, such as the case of growing under glass in northern climes for the sake of taking advantage of the high prices at the beginning of the local season, and in some instances, as we have seen before, such producers have been forced out of business by the competition of products brought in refrigerator cars from warmer sections, where they have been allowed to ripen naturally. The raising of prices for Michigan peach growers has already been alluded to. When the crop used to be dumped in Chicago and Milwaukee by means of steamers across Lake Michigan, those markets invariably became glutted, and prices were exceedingly low, often with resulting loss to the shippers. The same principle is illustrated in the history of the cantaloupe industry in eastern Colorado. When only the local markets of Denver, Pueblo, *etc.*, were open to producers, the prices were often so low that the season's crop resulted in a loss, and it was not until 1897, when the market was extended to the east of St. Louis, that the cultivation of melons was rewarded by adequate returns. Likewise, in California, the carriage of fruit to eastern markets was obstructed at one time during the season of 1894, the San Francisco market became flooded, and prices were slaughtered, but with the resumption of eastern business, they recovered again. Examples of this sort might be multiplied indefinitely, especially in the case of sections far removed from markets, where a few years ago it did not pay to produce on a large scale, and where the increases in land values now bear eloquent testimony to the improved condition of the farmers.

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[1] Page 85.

We have now completed our survey of the history of special-equipment cars, and the part that they have played in the development of the country. As intimated in our introduction, the second part has been studied almost exclusively in connection with the refrigerator car. Although there are other phases of the development which might have been discussed, enough has been said to show the important rôle that this modern device of transportation has played in building up certain agricultural sections of the country. It has been the purpose of this sketch to impress the reader with the importance of this factor at a time when private cars in general are being discredited by a large majority of the public, who realize but little the great benefit that they, together with the cars owned by the railroads, have conferred on the country at large.

The foregoing discussion has been in the nature of a preparation for a study of the relations which the privately owned special-equipment cars bear to the railroads. We shall now proceed to trace the history of this relation, to study the practices of the private-car lines, to reveal the evils in connection with their use, and to endeavor to suggest remedies for the abuses which actually exist.

CHAPTER III

FINANCIAL RELATIONS BETWEEN PRIVATE-CAR LINES AND THE RAILROADS

IT is commonly supposed that the private car is of comparatively recent origin. The systems of such cars operating at present over the railroads of the country have, indeed, developed during the last three decades, but these were not by any means the first to be used in the United States. Private cars date back to the very inception of the railroad business, for in the early days it was a common theory that the roadbed and motive power should be furnished by the railroad, and the cars owned by the shippers. In general, it is possible to outline three distinct epochs in the railroad history of the United States during which privately owned cars have been in general use. These are: first, the few years immediately following the building of the first railroads, from about 1830 on, when cars were owned by private individuals and companies in accordance with what may be called the public-highway theory; second, the period from about 1860 to about 1875, during which years many of the fast-freight lines, which were then coming into existence, were not owned by the railroad companies; and third, the period beginning about 1880 and continuing today, which is marked by the development of the ownership by private companies of cars of special design, such as stock, tank, and refrigerator cars. Before discussing the relations of these private companies to the railroads today, we shall give a short sketch of these relations during the two earlier periods.

The theories of transportation in vogue at the time the first railroads were built were an outgrowth of the system of turnpikes then in general use. Turnpikes were public highways over which anyone could drive his vehicle, and the company which built and maintained the road exacted tolls for its use. On the very earliest railroads that were built, horses were used for the motive power, and generally in these cases, the public-highway theory was continued. The introduction of the locomotive gave rise to a new problem, because there were no precedents for a transportation system in which the ownership of the road itself was combined with the ownership of the vehicles and motive power. Of course the locomotive, from the first, was owned by the railroad for obvious reasons, although, strange as it may seem, the introduction of this new form of motive power on the old horse-railroads was objected to by some on the ground that it would revolutionize the transportation system, and deprive many people of their free use of the public highway. Although many of the roads began building their own freight cars, yet in a great many instances, these cars were owned and furnished by shippers and individuals.

There was an interesting instance of this early private ownership of freight cars on the so-called *Composite System* of state-owned railroads and canals in Pennsylvania where the vehicles continued to be owned by individuals, firms, or private corporations until the commonwealth disposed of its public works after nearly twenty-five years of state management.[1] An article on the Philadelphia and

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[1] J. L. Ringwalt, *Development of Transportation Systems in the United States*, p. 91.

Columbia Railroad in Pennsylvania, published in 1840,[1] gives the salient facts concerning the relations of these privately owned cars to the railroad. "All the cars used on this road belong to individuals or companies, but the motive power is furnished by the state, except in the case of the West Chester cars and some few others, which are drawn by horses." The writer goes on to explain that the collectors kept separate accounts of tolls for the use of the roadbed, and for the motive power. As will be seen from the following, the total charge exacted by the railroad was composed of four separate parts: first, a toll for the use of the road levied on goods carried, varying from six mills to four cents per ton per mile (all freight being classified under twelve different rates, the average of which was about two cents per ton-mile) ; second, a toll for the use of the road levied on the cars,— "one cent per mile on each burthen car, two cents per mile on each baggage car, and on every passenger car, one cent per mile for each pair of wheels;" third, a toll for motive power levied on goods carried at the rate of twelve mills per ton; and fourth, a toll for motive power levied on the cars,—"for each car having four wheels, one cent per mile, for each additional pair of wheels, five mills." An estimate of the railroad charges on a four-wheel burden car loaded with three tons of dry goods was computed as follows:

Road toll on car	1 cent per mile.
Road toll on 3 tons dry-goods	12 cents per mile.
Motive-power toll on car	1 cent per mile.
Motive-power toll on 3 tons dry-goods	3.6 cents per mile.
Total toll	17.6 cents per mile.
Toll per ton per mile	5.86 cents.

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[1] C. H. Wilson, "Notes on the Philadelphia and Columbia Railroad," *Journal of the Franklin Institute*, May, 1840.

Since the owners of the cars charged $7.50 for every ton of dry goods carried the length of the road (82 miles), or 9.14 cents per ton per mile, there remained to them, after paying 5.86 cents, a profit of 3.28 cents per ton-mile.

In another instance the charges were not so complicated, and the relations between the actual shipper and the railroad company would seem to have been more direct. An old time-table of the Ithaca and Owego Railroad in New York State, printed in 1838, says that the "train of transportation cars" stops at certain enumerated stations "to take in and discharge loading, and to receive such cars as may be in readiness to join the train." It also states that "no burden cars are permitted to run upon the road except such as are registered in the secretary's office in Ithaca and have a certificate of fitness from the engineer, and a waybill of loading must accompany each car not belonging to the company's train, and toll paid at the gates at the rate of three cents per tun per mile." "The burden cars" referred to above were owned by individuals who, under the provisions of the charter of the road, could have them added to the company's trains at certain points along the route.[1]

The private ownership of railroad vehicles, however, was soon supplanted almost entirely by the system of railroad ownership, and by 1840 or 1845 the change was nearly complete. This transition from the old public-highway theory was well summed up by George Ticknor Curtis, referring to this subject in 1880:[2]

> The ideas of the first projectors of the railroads in New England, and of the public, as to the use that would be made of them, were exceedingly crude. The earliest charters granted in Massachusetts contain traces of an expectation that the com-

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[1] *Express Gazette*, Nov. 15, 1902.

[2] Ringwalt, *op. cit.*, p. 92.

> pany would lay down the rails, and that the public would somehow drive their own carriages over them. In this imperfect conception of what was to be done, the railroad, it was supposed, would be operated like a chartered turnpike, the proprietors having the right to take tolls of those who should drive their own carriages over the road. It was not until a later period, after the English example was better known, that it was seen here, that a railroad could not be worked like a chartered turnpike, or like a public highway; that it would be impracticable to admit the carriages of individuals to pass over the rails. . . . The supposed analogy, therefore, between the railroad and the chartered turnpike . . . . entirely disappeared.

The second period of private ownership of freight cars began with the establishment of the fast-freight lines, some of them making their appearance in the late fifties, but most of them during the sixties. The reasons for their coming into existence lay in the fact that the railroads west of the trunk-line termini were short and independent lines. Each company carried freight only to the end of its line where it was unloaded, turned over to the connecting road, and loaded again. The roads took receipts from one another, and bills of lading were made out only to the end of the road receiving the freight,—except that in some cases through bills of lading were used. These, however, were so hedged in by limitations as to the liability of the particular railroads that the consignee in case of loss or damage or overcharge was compelled to go to the offending railroad, irrespective of how near or remote that company might be.[1] This transshipment of freight necessarily resulted in delays and damage to the much-handled property, and the demand for some system of through-routing finally brought about the fast-freight lines. Instead of coöperating, the railroads left the establishment of these lines to private companies. Kasson's Despatch, a line operating over the New York Central, and later merged into the Merchants' Despatch, was the first line formed, in 1855 or 1856. The next was the Great Western Despatch, which confined its operations to the Erie and its western connections, and which began business in 1857. During the sixties a number of other lines sprang up, such as the Merchants' Despatch, Union, National, Star, Diamond, Globe, Empire, *etc.* In some cases, these early lines were owned jointly by railroads and outside companies, but more generally by the private companies alone, although it was alleged that railroad officers were often financially interested in them.

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[1] Hepburn Committee, *Investigation of Railroads* (New York State), 1879, vol. iii, p. 2959.

The contracts that these various companies held with the railroads were varied, and it is difficult to say just what the relations were. One writer says that the company furnished its own cars, made contracts with connecting railroads, paying them specific sums for the privileges granted, and established its own freight agencies in the various cities.[1] A common arrangement was that the fast-freight line should pay the railroad so much per car, irrespective of the freight carried, and whatever the car line could get for freight, over and above the payment to the railroad, constituted its profit. In some cases this arrangement was very remunerative to the freight line. Another form of agreement provided that the railroad should pay the freight line a certain percentage of the freight rate, and in one case of a contract between the Erie and a certain line, these percentages ranged from fifteen on the first and second classes of freight down to five on the fourth class.[2]

[1] Bolles, *Industrial History of the United States*, p. 660.

[2] *Hepburn Committee Investigation*, vol. iii, p. 2963.

These early fast-freight lines, which have been called non-coöperative lines, were a great boon to shippers, and did much to stimulate through traffic; but there was a growing opposition to them owing to the fact that they were earning large profits which the railroads themselves might have had, and because it was alleged that they enabled officers of the railroads who were interested in them to make profits which belonged to the stockholders. The result was a new form of fast-freight line,—the coöperative line, as it has been called,—which was owned by the railroads. Many of the freight lines already in existence were acquired by railroad companies, and new ones were formed,—connecting roads between principal points supplying quotas of cars towards the common equipment of a coöperative line. This new class of lines took their names from particular colors, as the Orange, Blue, Red, and White Lines. By 1875 the private lines had passed almost entirely out of existence.[1]

The third era of private cars began soon after the non-coöperative fast-freight lines disappeared, but it was not until during the eighties that they became numerous enough to attract much attention. It has been shown above that the reason for the formation of the fast-freight lines was the necessity for some efficient method of handling through freight. The fundamental reason for the growth of the private-car system which we have today, was this: prior to their establishment all commodities were carried in the regular railroad cars, but it was discovered that certain kinds of goods, such as fresh meats, fruits, and vegetables, which were just beginning to be shipped by rail, could be transported to much better advantage in cars of special design, rather than in the ordinary freight cars then in use. The railroads, as we have seen, were slow in meeting the demands for improved vehicles, and therefore it was left to the shippers to take the initiative in that respect. This movement was a partial revival of the primitive theory, according to which the railroads were expected to furnish only the roadway and the motive power,—but here the analogy ceases, because instead of the railroads' exacting toll for the running of cars over their lines, they now had to compensate the owners of these special-equipment cars for the privilege of hauling them. In other words, railway companies rented the cars of individuals, instead of permitting individuals to hire the right to run their vehicles over the railroads.

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[1] Ringwalt, *op. cit.*, p. 192.

The early history of these private lines has been discussed in a previous chapter. It will be remembered that the railroads failed to provide this special equipment for two main reasons: first, that they did not wish to go to the expense of building equipment which was in the nature of an experiment, and which could be used only at certain times during the year; and second, that the railroads were engaged in a heavy traffic in livestock to the Atlantic seaboard, for which they owned a sufficient number of cars, and neither they nor the livestock interests wished to see this lucrative business curtailed by the substitution of dressed-beef traffic. Although material on the subject is rather meager, there is enough to give a fairly good idea as to the relations of these private cars to the railroads, and to enable one to understand how the present arrangements as to payment of car-mileage by the railroads have come about.

At first, it would appear that there was no mileage allowed on the use of these private cars, whether loaded or empty.[1] This condition, however, lasted only a short time, and we soon find the railroads paying a mileage rental. This payment of mileage, however, was on loaded cars only, and in the case of tank cars the railroads charged the companies for hauling " empties." For example, the charge levied by the roads in transcontinental territory for this service was about $80, while from the Missouri to the Mississippi it was $25 per tank.[1] This return charge was abandoned at an early date east of the Mississippi, and soon afterward it was done away with in the West. The change was due to competition; a comparatively new road running west from Chicago, in order to secure some of the oil traffic between that point and the Missouri River made a contract with the Union Tank Line to pay three-quarters of a cent a mile on all tanks carried over its line, whether the cars were loaded or empty. As the Union Tank Line, which was and is a subsidiary concern of the Standard Oil Company, carried practically all the oil offered for transportation, the other roads were obliged to make similar arrangements with this company in order to hold their traffic. This rate of mileage, three-fourths of a cent, loaded or empty, which was at that time the universal rate of payment by one railroad for the cars of other roads running over its lines, has since continued to be the rate on tank cars in almost every part of the country, although there have been attempts on the part of the railroads, of which we shall speak later, to reduce it.

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[1] Testimony of J. W. Midgley, I. C. C., Oct., 1904. *Hearings.*

The owners of the palace stock cars did not find it so easy a matter to induce the railroads to pay them a mileage rental. The railroads, which owned ordinary stock cars, thought that their equipment was sufficient and did their utmost to discourage the use of the improved cars that private companies were building. Furthermore, — and this was the important factor,—the owners of palace livestock cars were not originators of traffic, as the tank-car owners were, and the stock-car companies were exacting at the same time two and one-half cents per mile from shippers for the use of their cars. The railroads were not handicapped, therefore, by having to deal with owners of cars who were also shippers, and were able to act more independently and without the danger of incurring the disfavor of shippers. Accordingly, they declined at first to pay mileage on such cars.

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[1] Midgley, *Railway Age*, vol. 34, p. 369.

Soon after the Interstate Commerce Commission was appointed, in 1887, the Burton Stock Car Company, one of these private lines, complained to the Commission that the Chicago, Burlington and Quincy, and other railroads, were discriminating against them by refusing to allow the regular mileage of three-quarters of a cent for the use of their cars. It seems that this company had been building cars ten, fifteen, and even twenty feet longer than the railroad stock cars, but on account of the space occupied by contrivances for the safety and comfort of the animals, they carried fewer head of cattle than the railroad cars. In order to discourage their use, the railroads had inserted a provision in the western classification in 1887, that livestock carried in special or palace livestock cars, not the property of railroad companies should be charged from 120 to 150 per cent of the published rate, varying and increasing with the length of the car. The Chicago and Alton did not accept the foregoing rule of the western classification, but in the same year provided for a charge of five cents per mile for empty cars, as well as for higher freight rates on livestock in cars over thirty feet long.[1] The Interstate Commerce Commission, after a study of these and other facts, and basing its opinion partly on the ground that the cars were not available for back-loading, rendered the following decision:

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[1] Midgley, *Railway Age*, vol. 34, p. 370.

> As the Burton Stock Car Company does not use cars of railroad companies, cr exchange cars in any manner, but rents them to the public for hire, the refusal of the defendants to pay the same mileage allowed on exchanges of cars between each other does not constitute unjust discrimination.[1]

Although this was a victory for the railroads, the advantage that they gained was but short-lived. They were paying three-fourths of a cent mileage on refrigerator and tank cars at this time, the reason for the difference in the attitude of the railroads lying in the fact that the last two classes were owned almost entirely by shippers to whom the railroads were compelled to cater. They were destined soon to pay the same mileage rate on stock cars. The manner in which the change came about may best be explained in the words of Mr. Midgley:[2]

> One of the largest packers leased a lot of cars in which to forward his purchases of cattle to market, and on those he was allowed the regular mileage that obtained between railroad companies. Private stock-car companies noted the performance and put their cars to a similar use—leasing them to shippers — and as the stock was routed only *via* such roads as would allow the usual mileage—three-quarters of a cent loaded or empty—the practice soon became universal.

The mileage rental on stock cars was subsequently changed to six mills per mile, as will be pointed out below, and this is the rate which now prevails.

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[1] Burton Stock Car Company *vs.* Chicago, Burlington and Quincy Railroad Company, *et al.* 1 *I. C. C. Rep.*, p. 132. *Cf.* also Midgley, *Railway Age*, vol. 34, p. 369.

[2] *Ibid.*, p. 370.

As the first owners of refrigerator cars were large shippers, they had very little trouble in exacting the regular three-quarters of a cent rental from the railroads. At the very outset there were some instances where they received no mileage, and later they were allowed mileage only on loaded cars. The competition of the carriers for the heavy shipments of the packers was so great, however, that the regular mileage was soon allowed on empty as well as on loaded cars. West of Chicago and St. Louis, the car lines were even more successful, for in that territory they succeeded in securing from the railroads one cent a mile, loaded or empty, a practice which still continues. This came about as a result of the keen competition between the railroads of that section: one road, in order to obtain more traffic, made a contract with a powerful shipper who owned refrigerator cars, to pay one cent a mile on such cars for a period of five years, the car company promising to furnish all the refrigerator cars needed by the railroad. Competing roads naturally followed this move, and it soon became the custom in that territory with one or two exceptions.[1]

From what has been said it will readily be seen that although the railroads were opposed to this payment of what they considered an unreasonable mileage, they were helpless in the hands of the large shippers, and had to yield to their demands. The results of free competition in railroading to secure traffic at any cost is nowhere better illustrated than here. The railroads realized that if they could act in concert against the private-car lines they might be able to reduce the mileage, and in 1894 they made a bold attempt in this direction. For an account of this movement, we may quote from an article[1] by Mr. J. W. Midgley, the well-known expert in traffic matters, who as a colleague of Col. Albert Fink and George H. Blanchard has achieved considerable distinction, and who, in his series of articles in the *Railway Age*, has given to the public a profound study of the private-car situation. Mr. Midgley views matters from a railroad man's standpoint, and as he took a leading part in this controversy, his account furnishes an authentic as well as an interesting chapter of railroad history.

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[1] *Int. Com. Rep.*, 1889, p. 16.

Alarmed by the growing numbers and persistent influence of private cars, a movement was inaugurated by western railroads, early in 1894, to restrict the rental therefor to half a cent per car per mile. Eventually ninety-five railroad companies agreed to limit their payments as above for the use of private cars, commencing on August 1st, 1894. This was to be the allowance on loaded or empty cars. In September following, the Southwestern Traffic Association, consisting mainly of lines entering Texas from St. Louis and Chicago, recommended that no mileage should be paid on empty tank, poultry, arms, or other palace cars, but that suggestion did not prevail.

Before the reduced rate became effective, a representative of the Union Tank Line Company vainly besought the executive officers of western roads to reconsider their action so far as tank-line cars were concerned. The same party then induced the commissioner to meet with the Union Tank Line Company in New York, but that conference was likewise without avail, except that a meeting between a committee representing western railroads and the aforesaid tank-line company, in New York, was promised. This occurred early in October.

Meanwhile, a conference with a committee of Eastern railroad presidents had been arranged. Six vice-presidents of western roads, together with the undersigned, attended, and

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[1] *Railway Age*, vol. 34. p. 401.

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the result was a recommendation that, taking effect on November 1, 1894, the mileage rate for the use of freight cars should be six mills per car per mile, provided, that if contracts existed at higher rates, those should be reported, and roads so desiring be permitted to meet the same; otherwise, it was declared they should not share in the traffic. The reference was to refrigerator and tank-line cars. Upon the former, it was intimated, three-fourths of a cent and one cent per mile, and on the latter three-fourths of a cent per mile were assured, by contracts with certain roads.

Next day the western committee met the Union Tank Line Company. The railroad gentlemen were told that unless they would restore the mileage of three-fourths of a cent, loaded or empty, on tank cars, they would get none of the Standard Oil Company's shipments to Saint Paul and Minneapolis or to Missouri River points; that the weakest road (in moral stamina) which could be found would be selected, and all shipments of oil, *etc.*, to the destinations named would be concentrated thereon, whereupon other lines, it was predicted, would soon cry out for Standard Oil business, which they would not get until they agreed to restore the concessions heretofore granted.

Thinking to offset that attitude, one vice-president remarked that the railroads were large purchasers of oil for illuminating and lubricating purposes, and that boycotting such as was threatened by the U. T. L. Company might compel the railroads to buy oil elsewhere. To this the curt reply was made that the railroads were at liberty to purchase where they chose, that the Standard substantially controlled the oil production of the country, and that adequate supplies thereof could not be had from other producers.

This summarily ended the conference. A "weak sister" (as the U. T. L. officer had aptly termed the erring one) was found; all the Standard Company's oil shipments during the next month to the twin cities and to Missouri River points were thrown upon this particular road, because of its agreement to allow three-quarters of a cent per mile, loaded or empty, which diversion so adversely affected the earnings of another company that a conference of interested parties was demanded. This was held in Saint Louis on October 16, 1894, when surrender was made by the adoption of the recommendation hereinbefore recited, namely, that the mileage-rate on freight equipment should be six mills per car, unless there were existing contracts at higher rates, in which event " all lines shall be at liberty to meet the mileage rates enforced by such contracts." The contract already described with the U. T. L. Company operated to restore the rate of three-fourths of a cent per mile on tank cars, loaded or empty, and no subsequent attempt has been made to modify that arrangement.

Supplementing the foregoing, it may be stated that the leading packer and refrigerator-car owner, during the progress of the meeting last described, telegraphed strongly advising that the mileage on refrigerator cars be made not less than three-fourths of a cent per car per mile instead of half a cent, as was originally contemplated, thereby signifying his willingness to accept three-fourths of a cent in lieu of one cent per mile, which had long before, and has since, prevailed west of a meridian drawn through Chicago. The undersigned read the message referred to, therefore learned its precise contents. Suffice it to say that the signer of the message was able to speak for all privately-owned refrigerator cars; but there was such intense feeling in view of the coercion exercised in the matter of tank cars that further efforts to resist the demands of large shippers who were also owners of private cars were abandoned.

In his testimony before the Interstate Commerce Commission in 1904,[1] Mr. Midgley enlarged on one or two points mentioned in the above recital. In speaking of the " weak sister " incident, he says that immediately after the conference with the Union Tank Line during which they had threatened to single out some road which would allow the regular mileage, he met Mr. A. B. Stickney, president of the Chicago Great Western Road, and told him of the interview. Mr. Midgley says:

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[1] I. C. C., Oct. 1904, *Hearings*, p. 15.

> He was a party to our agreement. His line had never carried a car of oil before that time for the Standard Oil Company. He went right up there and made a contract allowing them three-quarters of a cent for their tank cars, and then gave me notice that he thought it was severe treatment that we had imposed and that we ought to meet the rate. He got all the oil for a month or two. The other lines didn't get one carload to St. Paul, Minneapolis, or the Missouri River. It made a great hole in their earnings and they called for another meeting.

Then came the St. Louis conference, and the yielding on the part of the railroads. During the same year another conference in New York compromised on the mileage rates, making it six mills per car per mile, including stock cars and railroad cars, but excepting refrigerator and tank cars. Thus the only result of this agitation, so far as the private-car companies were affected, was the reduction of the mileage on stock cars alone, from three-quarters of a cent, to six mills per mile. This rate on stock cars continues today.

The mileage rentals of private cars have undergone but little change since 1894. In 1896 the Interstate Commerce Commission issued an order to all common carriers, requiring them to report the amounts paid by them to private-car companies, individuals or firms for the use of cars other than those owned and operated by railroad companies for the year ending June 30, 1895. Replies were received from 1498 railroad companies. 350 reported mileage payments, which were distributed among 854 different companies, and 1148 railroads disclaimed any such payments. The 350 railroads reporting payments included all the important lines of the country; the majority of the 1148 roads disclaiming payments were unimportant lines, and the operations of many of them were included in the reports of the larger companies. The amounts paid by the various railroads, and also the amounts received by the private companies, were published in the annual report of the Commission for 1896.[1] Although these figures were to a certain extent invalidated by the inclusion of payments to such companies as the Merchants' Despatch Transportation Company, the American Refrigerator Transit Company, and numerous fast-freight lines which really belonged to the railroads, some of the results of this report are worth quoting. The total amount paid by the railroads for mileage for the year ending June 30, 1895, was $11,261,328.61. Of this, $2,517,302.68 was for passenger cars, and $8,744,025.73 was for freight cars. Payments to fast-freight lines and other companies which were really owned by railroads would cause a deduction from the above of about $1,000,000. The prevailing rates of mileage on freight cars, as reported by the railroads, were six-tenths of a cent, three-fourths of a cent, and one cent a mile; in a few cases they were one-half of a cent, two-fifths of a cent, and one-quarter of a cent. The various Armour lines received upwards of $1,000,000 or one-eighth of the whole, and the Swift and Company lines nearly $900,000.[2] It would appear from the report that there were about 130 private refrigerator-car lines receiving mileage from the railroads at that time.

Estimates of the earnings of private cars on the mileage bases referred to above, will be given later. According to the expressions of opinion of many railroad men, the railroads have continued to chafe under the present system of mileage rental, but no important attempts have been made to reduce it.

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[1] Appendix D, *Int. Com. Rep.*, 1896.

[2] According to figures furnished to the Wisconsin Tax Commission in 1907, the Armour Company received during the previous year over $2,500,000 in mileage rentals.

In 1902 the *per diem* method of settling balances for interchange of cars owned by railroads was introduced, but private cars were allowed to continue under the old system. Question immediately rose as to what basis of payment should be used for the special-equipment cars of those companies which belonged to certain railroads. The Merchants' Despatch Transportation Company, belonging to the Vanderbilt system, and the American Refrigerator Transit, belonging to the Gould roads, announced that their cars would continue on the mileage basis. This involved the question as to what, strictly speaking, is a private car. According to the definition given by the American Railway Association, a private car is one "having other than railroad ownership," and it was the evident intention at the time of the formulation of the *per diem* code, that such cars as those above referred to, should not be classed as private cars. An appeal was made to the arbitration committee of the American Railway Association to decide the status of the cars belonging to these companies which were affiliated with railroads, and which had not been ordinarily considered as private cars. This was never decided, because the committee made a ruling at its next meeting that this question would not be considered, except on written application of both parties to the controversy,—namely, the owner of the cars, and at least one railroad over which they passed.[1] As the owners of the cars naturally did not wish to join in such a request to have their action in continuing them on a mileage basis reviewed, nothing was done. In the meantime, the Pennsylvania, the Erie, and the Baltimore and Ohio made unique arrangements with their connecting lines, allowing them to settle for refrigerator cars on either the *per diem* or the mileage basis, whichever they found to be the cheaper in each separate case. This arrangement has existed nominally to some extent ever since. The Santa Fe Refrigerator Despatch followed the example of the Merchants' Despatch, as did many other companies, and placed their cars on a mileage basis. The result of all this was, that in addition to the 120,000, or so, private cars then in existence, there were thousands of other cars, really belonging to railroad companies, which were continued on the mileage basis.

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[1] Midgley, *Railway Age*, vol. 34, p. 678.

A partial summary of the foregoing, together with some exceptions and additions, will afford a more definite idea as to the actual mileage rentals being paid at present. Refrigerator cars earn three-quarters of a cent a mile, loaded or empty, east of Chicago, with few exceptions, the most notable of which is the payment of one cent a mile by the Grand Trunk on beef shipments from Chicago to the east by way of Montreal.[1] Some other roads pay one cent a mile on refrigerator cars containing dressed meats, but only three-quarters of a cent on cars containing fruit or other commodities. The Wabash, for instance, has a contract with Swift by which it pays one cent a mile for his cars.[2] Again, in New England, the Boston and Maine pays one cent a mile on cars containing dressed meats, and three-fourths of a cent on all other refrigerators.[1]

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[1] Mr. Robbins, President of the Armour Car Lines, explained this by stating that the mileage had been at one time three-fourths of a cent over the Grand Trunk, and that there had been a differential of two cents a hundred in the freight rate, but that on the removal of the differential the extra mileage had been substituted. *Cf.* testimony before House *Committee on Interstate Commerce*, Feb. 13, 1905.

[2] I. C. C., Oct., 1904, *Hearings*, p. 179.

Between the meridians drawn through Chicago, and the Rocky Mountains, refrigerator cars command generally one cent a mile, loaded or empty, there being some exceptions where three-quarters of a cent is paid on fruit and dairy cars. The contract that the Armour Lines have until recently had with the Southern Pacific showed the greatest exception to the usual practice. According to this, the railroad paid six mills per mile, and only on loaded cars; in the case of deciduous fruits from Northern California, the road paid mileage on neither loaded nor empty cars.[2] The only source of revenue for the car line in this particular traffic, therefore, was from the charges it levied for refrigeration. West of the Rocky Mountains, the general mileage rental seems to be three-fourths of a cent on loaded cars only.[3]

Tank cars receive uniformly three-quarters of a cent, and stock cars generally six mills per mile loaded or empty, throughout the country. Coal cars owned by private companies receive three-fourths of a cent as mileage rental.

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[1] Testimony of President Tuttle before Senate *Committee on Interstate Commerce*, April 20, 1905. (The *Hearings* of this Senate Committee in 1905, published in five volumes, will be referred to *infra* as Elkins Committee *Hearings*.)

[2] *Cf.* Armour-Southern Pacific Agreement, Elkins Committee *Hearings*, vol. iii, p. 2412.

[3] Midgley in I. C. C., Oct., 1904, *Hearings*, p. 7.

CHAPTER IV

CONTRACTS BETWEEN PRIVATE-CAR COMPANIES AND THE RAILROADS

In the historical survey of the system of mileage payments certain contracts between private-car companies and railroads have been referred to as playing an important part in fixing the amount of the rental. For instance, some powerful shipper owning cars would make a contract with a railroad, guaranteeing to the road a certain amount of traffic, and would receive in return a promise of a certain mileage,—the agreement to hold good for perhaps three years or more. If that mileage payment happened to be higher than the prevailing rate competing roads would be forced to grant the same rate, and by the time the first contract had expired the custom of paying the increased rate would have become established throughout the territory affected. Although mileage rentals for private cars have changed but little during the last few years, there are different forms of contracts which must receive attention in any study of the relations between car companies and common carriers. These contracts may be roughly classified into three groups: first, agreements between shippers owning private cars and railroad companies, in which the shippers usually promise a certain amount of traffic and the railroad companies fixed mileage rates and also maximum freight rates on goods transported; second, contracts between private-car companies (which are not also shippers) and railroads, in which provision is made for the payment by the railroad of certain commissions on the freight rates, over and above the regular mileage rentals, on goods transported in the car companies' cars over the lines of the railroads; and third, contracts by which the railroad promises to use exclusively the cars of one particular private company for some particular class of traffic. This last is the well-known exclusive contract, about which so much has been said and written.

As for the agreements between shippers and railroads, those of the large packers offer the best illustrations. For instance, Schwarzschild and Sulzberger, operating refrigerator cars under the name of the Cold Blast Transportation Company, have a contract with the Chicago and Great Western Railroad, in which the packing company agrees to give to that road fifteen per cent of its total tonnage from the Missouri River to Chicago, and the railroad in return guarantees the regular mileage payment of one cent a mile, and also a maximum freight rate of eighteen and one-half cents a hundred. The contract now in operation was made in 1903, and was to run seven years from date.[1] Swift and Company have contracts with the Pere Marquette, Grand Trunk, Wabash, Chicago and Great Western, and the Canadian Pacific Railroads. In some cases the packing company agrees to ship a certain number of cars over the contracting railroad (as, for instance, forty a week over the Pere Marquette), and in other cases it promises a certain proportion of its total tonnage (as, for instance, fifteen per cent over the Great Western). The railroads, in turn, guarantee mileage rentals and maximum freight rates, and the contracts extend over five or seven year periods.[2] It has been testified before the Interstate Commerce Commission that almost all the packers have similar contracts with the Pere Marquette, as well as with numerous other roads. The examination of witnesses by the Commission did not bring to light any illegal practices in connection with these contracts, such as special favors, discriminations, or rebates. They are evidently made merely as a guarantee of the continuance of certain business relations, although they stand seriously in the way of any concerted action among the railroads towards the reduction of mileage rentals, and have undoubtedly been used as a means of hammering down freight rates on dressed meats.

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[1] I. C. C., Oct., 1904, *Hearings*, p. 167.

[2] *Ibid.*, p. 177.

The second class of contracts, those in which a certain percentage of the freight rate is paid as a commission by the railroad to the car company, involves a more serious question. For, if the car company is also a shipper, the commission may amount to a rebate. In the majority of cases, however, this question does not arise, because the car companies appear to have no other interests than the solicitation of freight to be carried in their cars. A good example of this is the contract between the Missouri River Despatch, a refrigerator line of about 250 cars engaged in handling poultry and dairy products, with the Erie Railroad, in which the railroad agrees to pay in addition to the regular three-quarters of a cent mileage, a commission of 12½ per cent of the freight rate, and the car company, in turn, promises to ship only over that line.[1] The object of the railroad in making the contract, as stated by the Erie traffic manager, was to secure additional business.[2] According to testimony before the Interstate Commerce Commission, the car line is not an owner in any way of the commodities shipped, and it was further brought out that the manager of the refrigerator line had for years been in the traffic department of the Erie Railroad prior to his connection with the car line, and that in his latter capacity he might be considered as a solicitor of freight for the railroad, although not on the pay roll of that company. Other refrigerator lines which have contracts similar to this one, are the New York Despatch, which receives 12½ per cent commission on dairy products from the Grand Trunk and Central Vermont, and 10 per cent from the West Shore,[1] and the Dairy Refrigerator Despatch, which receives 12½ per cent from the Lackawanna.[2]

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[1] I. C. C., Oct., 1904, *Hearings*, p. 94.

[2] *Ibid.*, p. 101.

There are some of these contracts, however, which deserve special attention. The most important is that of the Milwaukee Refrigerator Transit Company which has a contract with the Erie in accordance with which it receives a commission of 12½ per cent on the freight rate. Although the car line is a separate corporation, it is owned exclusively by the Pabst Brewing Company people, who make their beer shipments in its cars. It is evident that under this arrangement the payment of a commission amounts to a rebate. This important case will accordingly be treated at greater length in the chapter on discriminations and rebates.

The class of contract that has attracted the most attention is the so-called exclusive contract, in which the railroad agrees to use the cars of a certain private company and no others for some particular kind of traffic, generally fruit. The railroad also guarantees the payment of mileage, and the car company agrees to furnish a sufficient number of cars, and to attend to the icing, for which it makes a charge to the shipper. This form of arrangement has been severely criticized by the agitators against private-car companies on the ground that it grants to the car line an absolute monopoly, with the result that it may charge whatever it sees fit for the icing service. A discussion of the merits and demerits of exclusive contracts necessarily deals with those of but one private-car company, the Armour Car Lines, which has contracts with some twenty or thirty different railroads, and which has ousted other private lines from most of the important fruit-growing sections.

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[1] I. C. C., Oct., 1904, *Hearings*, p. 155.

[2] *Ibid.*, p. 156.

This policy of making exclusive contracts was begun by the Armour Company in 1897 when it entered into an agreement with the Southern Pacific for the carriage of fruit from California to the East.[1] In 1898 the Central of Georgia made such a contract with the Armour Lines for the handling of the Georgia peach crop. This policy was followed by other southern railroads, including the Southern Railway, Atlantic Coast Line, and the Seaboard Air Line, until it soon came about that Armour handled practically the whole of the fruit and berry crop of the South Atlantic States,—a condition which continues today. Likewise, in Michigan, the Armour Company has had exclusive contracts with the Michigan Central and Pere Marquette Railroads, and these have been the most vigorously attacked, because the icing charges were raised enormously at the time the contracts were made in 1902. The Interstate Commerce Commission investigated the Michigan matter in May, 1904, with the result that the Michigan Central discontinued its contract, while the Pere Marquette declared its intention to lower icing charges for the season of 1905, although still operating under the exclusive contract, and for the season of 1906 to purchase or lease equipment of its own.[2] Subsequently, however, the Pere Marquette went into the hands of a receiver, and under the supervision of the Honorable Judson Harmon, the contract with the Armour Company was renewed. We shall have occasion to refer frequently to this Michigan case.

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[1] Elkins Committee *Hearings*, vol. iv, p. 3658.

[2] *Int. Com. Rep.*, 1905, p. 121.

These exclusive contracts have been denounced as secret. In a certain sense the charge is true in that they have not been filed with the Interstate Commerce Commission, and in that there have been until recently no means of knowing what their terms were. During government hearings, however, copies of some of these contracts have been submitted in testimony, and the text of the Pere Marquette-Armour contract of 1902-1905 is here offered as typical.

Contract between the Pere Marquette Railroad and the Armour Car Lines.[1]

This agreement, made and executed in duplicate this 23d day of December, A. D. 1902, by and between the Armour Car Lines, a corporation organized and existing under the laws of the State of New Jersey, hereinafter known as "The Car Line," party of the first part, and the Pere Marquette Railroad Company, a corporation organized and existing under the laws of the State of Michigan, hereinafter known as "The Pere Marquette," party of the second part.

Witnesseth: That for and in consideration of the sum of one dollar ($1.00) by each of the parties hereto to the other in hand paid, the receipt whereof is hereby acknowledged, and in further consideration of the mutual covenants and agreements hereinafter set forth to be kept and performed by each of the parties hereto, it is hereby agreed as follows:

1. That the Car Line agrees to furnish to the Pere Marquette at some point or points on the Pere Marquette lines properly constructed fruit cars lettered "Fruit Growers' Express," "Kansas City Fruit Express," or "Continental Fruit Express," sufficient in number and furnished in such order as to carry with reasonable dispatch the fruit which the Pere Marquette shall be tendered by shippers during the life of this contract; and the Car Line agrees to keep said cars properly iced and under refrigeration, so as to protect fruit in carloads while in transit over the lines of the Pere Marquette and to destination.

2. The Pere Marquette agrees and obligates itself to use the Car Line's equipment exclusively in the movements of fruits under refrigeration from points on its leased and operative lines, except the Detroit and

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[1] Elkins Committee *Hearings*, vol. 1, p. 317.

Lake Erie Railroad in Canada, during the term of this contract, excepting from Grand Rapids, Michigan, and excepting in the case of such shipments of fruit as are destined to points on the lines of the Pere Marquette, and to Milwaukee, Wisconsin, and Manitowoc, Wisconsin, for which shippers may request Pere Marquette system refrigerators as are in suitable condition, as the Pere Marquette may elect, shall be used in the handling of said fruits when the same are destined to points beyond the Pere Marquette Railroad; [1] but in that event the Car Line's regular refrigerator charge, as indicated hereinafter, is to be applied and the shipments iced and handled under the supervision of the Car Lines.

3. The Car Line agrees to erect icing platforms at Grand Rapids and St. Joseph, Michigan, and provide other convenient facilities for the proper icing of cars used in the business referred to.

4. The Car Line's charges to be made for superintending, loading, furnishing refrigeration, and handling the business generally, under its supervision in any cars used for same, not to exceed on peaches and plums the rates shown in Car Line's tariff number 296, in effect August 1st, 1902, hereto attached and made a part hereof, and not to exceed on green apples, green pears, and grapes the rates shown in Car Line's tariff number 297, in effect August 1st, 1902, hereto attached and made a part hereof. It being understood and agreed that the Car Line's charges from Pere Marquette stations in Michigan shall in no case exceed charges made by the Car Line for refrigerating similar fruits from stations also situated on the lines of other roads in Michigan. The Car Line's charges referred to shall be billed as advance charges on each carload and shall be paid to the Car Line by the accounting department of the Pere Marquette monthly, it being understood that in event property is refused and sold at destination, through no fault of the railroad companies interested, or the Car Line, that the Car Line will join the railroad companies in prorating on a revenue basis any deficiency between the amount of transportation charges and proceeds of sale that may exist. In case consignees refuse to pay refrigerating charges, and agent at destination is unable to collect the same, the railroad shall be reimbursed for the amount advanced to the Car Line.

5. The Pere Marquette shall pay the Car Line three-quarters (¾) of one cent per mile run by each car of the Car Line used in said refrigeration service, both loaded and empty, except on such cars as may be left over at the end of the season in shipping districts and hauled empty to connections, as provided for in the last sentence of this paragraph, while in service upon the lines of the Pere Marquette, and furnish free transportation over its lines for the use of represen-

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[1] This confused wording appears in the agreement as reprinted in Elkins Committee *Hearings, op. cit.*

tatives of the Car Line engaged in looking after the fruit movement referred to, including permits to ride on freight trains, on the condition, however, that the Car Line shall (and it hereby agrees to) indemnify, protect, and save the railroad company harmless from any loss, damage, or expense on account of any claim against the railroad company growing out of injury sustained, or claimed to have been sustained, either in person or property, by any employee or agent of the Car Line receiving such free transportation over the lines of the railroad under the provisions of this contract, whether or not such injury is due to the negligence of the Pere Marquette or its employees. And the Pere Marquette also agrees to instruct its agents to obtain by wire from the officers of the Pere Marquette such information as may be requested by the Car Line's representatives. The Pere Marquette further agrees to deliver promptly any cars left over at the close of the season to such connections as are indicated by the Car Line, provided the Car Line shall not ask the Pere Marquette to haul its empty cars further than the junction point at which cars were received.

6. The Pere Marquette agrees to sell the Car Line such quantity of ice at Selby, Ionia, Ludington, and Saginaw as the Pere Marquette can reasonably spare, from time to time, if required by the Car Line, on basis of not to exceed two dollars ($2.00) per ton in bunkers of cars.

7. The Car Line agrees to assume all liability for, and promptly adjust and pay, and indemnify and save the Pere Marquette harmless from claims arising from any failure on its part to properly ice and keep iced said refrigerator cars furnished and supplied by it as aforesaid to the Pere Marquette.

8. This contract to become operative the date of its execution and terminate November 1st, 1905.

In witness whereof the said parties have hereto caused this contract to be executed in duplicate by their proper officers the day and year first above written.

ARMOUR CAR LINES,
By ——— ———.
PERE MARQUETTE RAILROAD COMPANY,
By ——— ———.

One of the leaders of the agitation against private-car abuses has been the National League of Commission Merchants, which, in 1904 appointed a special committee, known as the Refrigerator Car-lines Committee, with Mr. John C. Scales of Chicago as chairman. Mr. Scales wrote the articles that appeared in the *Saturday Evening Post* in 1906 in answer to those of Mr. J. Ogden Armour, which attracted wide-spread attention at the time. This committee expressed its views on the question of exclusive contracts in its first annual report, dated January 11, 1905, as follows:

> Starting with only vague rumors of the existence of exclusive contracts between the Armour Car Lines and numerous railways, the initial work of your Committee was necessarily constantly and greatly hampered for want of exact knowledge, but persistent and unremitting effort at last unearthed a condition of affairs relating to the icing and transportation of the perishable food products of the country, scandalous and appalling beyond belief. It has been established by a great mass of incontrovertible and unimpeachable evidence, that the exclusive Armour contracts provide that the railway entering into the same shall haul none but Armour cars, but if cars other than Armour be hauled, that the Armour charge shall apply. The effect of this provision of the contract has been the annihilation of competition, which has enabled the Armour Car Lines to charge any price they saw fit for icing, reaching in many instances to over four hundred per cent above the actual icing cost. The investigations have further shown that the practical Armour monopoly of the meat products of the country, enabling that and affiliated firms to offer to the railroads the largest freight tonnage in the world of any one commodity, has been one of the most potent agencies used in forcing the railways into these exclusive contracts. The word from the Armour Car Lines to the railways has been: make this contract or you get none of our freight.

As will be seen from the above, the principal grievance is the fact that Armour had been given a practical monopoly in the fruit business in certain parts of the country, and that this monopoly had resulted in unreasonable icing charges. Certain it is, that in the Michigan territory, these charges were raised enormously in 1902 when Armour first operated there under an exclusive contract. Although it is not our purpose to discuss in this place the reasonableness of icing charges,[1] it is safe to say here that if these charges were unreasonable, the fact was undoubtedly due to exclusive contracts. In this particular case the Interstate Commerce Commission expressed its opinion that the charges were exorbitant, and that the exclusive contract was mainly responsible therefor:[2]

> Acting under the contract, the Car Lines Company exacts charges for the refrigeration service which greatly exceed those formerly made to cover the cost of icing by the railroad companies, and range from 50 to 150 per cent above those made prior to the contracts by the Car Lines Company itself. The total cost of transportation to the shipper has been thereby very largely increased. *Held,* That the railroad companies, by making these exclusive contracts, in effect impose upon shippers exorbitant charges for the transportation of Michigan fruits to markets in other states in violation of section one of the act to regulate commerce.

Naturally, since the excessive icing charges appear to have been a direct result of monopoly power, the idea of monopoly itself is attacked. It may hence be asked: Is not the exclusive contract opposed to the spirit, and even to the letter of American legislation and ideas? If private-car companies are allowed to operate over the railroads at all, why should such lines not be allowed on every railroad? Is it right for a shipper to be forced to use the cars of one private-car line, and pay the charge arbitrarily fixed by that line, when he might otherwise furnish a car, either by leasing it or building it himself, and obtain suitable service, at a much less expense? The fact that Armour and Company have such a hold on the packing business readily suggests the complaint that they use this power to force favorable contracts from the railroads for their fruit cars. And although this has nothing to do with the question as to the legality or advisability of allowing such contracts, there is undoubtedly good reason for the belief that Armour has been able to arrange terms much more advantageous to himself than if he were not a powerful shipper.

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[1] *Cf. infra,* Chap. V.

[2] *Int. Com. Rep.*, 1904, p. 301.

Fruit growers in California made a similar complaint in 1906,—that refrigeration charges were exorbitantly high. The California Fruit Growers' Exchange, a coöperative organization representing over 3,000 growers, and shipping annually about 14,000 cars, drew up resolutions declaring that Armour icing charges were exorbitant, and alleging the existence of an exclusive contract as the reason thereof. The interesting fact about these resolutions is that they were inspired by the series of articles by Mr. Armour in the *Saturday Evening Post*, in which he made the statements that the agitation against private cars was being carried on solely by commission merchants in the large cities, and that there had been no complaints from the shippers themselves.

One other objection urged against exclusive contracts is that they prevent the railways from increasing their refrigerator-car equipment—a fact which is brought forward by those who look for a solution of the problem in the direction of railroad ownership of all special-equipment cars. As has been shown before, the number of refrigerator cars owned by the railroads has been rapidly increasing during the last few years but these have been built mainly for the carriage of dairy products, and many of the largest fruit-carrying roads have not built a single car for that traffic. Notable exceptions to this have been cited in Chapter I. As the fruit traffic is increasing by leaps and bounds, it is becoming more and more difficult for the railroads to step in and provide the necessary number of cars, and the exclusive Armour contracts act as an impediment to their doing so gradually.

Still another argument urged against exclusive contracts in this connection is that it is more difficult for railroads who do own refrigerator cars to find use for them on other lines when they do not need them themselves. During certain periods of the year, between fruit seasons, a railroad may have very little use for its fruit cars, and often allows them to run on roads in other parts of the country where they are needed. The existence of Armour contracts necessarily makes it more difficult to do this, and tends to discourage the building of such cars on the part of the railroads.

Although the case against exclusive contracts may seem fairly strong, there is a great deal to be urged on the other side of the question. Officers and attorneys of the Armour Company have had to defend their position practically alone, although they have been assisted by the testimony of some railroad men, and also by numerous fruit growers. In the first place, it has not always been the case that icing charges have been increased under the operation of exclusive contracts; sometimes, indeed, they have been lowered. In California, for instance, the charge for icing from Sacramento to Chicago was $125 a car. When the contract with the Southern Pacific was made, the charge was reduced to $90 a car. In 1899 it was reduced so as to apply to more weight and in 1900, a further reduction to $80 a car was made, making a total reduction of 41 per cent from the rate before the exclusive contract was made.[1] Again, in Georgia, previous to 1898, there were five competing car companies and the rate of refrigeration from Georgia common points to New York was $90 a car. When the exclusive contract was made, the rate was fixed at $80, and in 1901 " voluntarily " reduced to $68.75 a car. It may be well to suggest in passing, however, that prior to exclusive contracts, when there was competition among different car lines, the practice of rebating was prevalent in both of these sections, especially in California,—and this fact is admitted by car-line men and shippers alike,—so that although there was a substantial reduction from the formal tariff, it may not have been so much of an actual reduction.

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[1] Testimony of George B. Robbins, President of Armour Car Lines, before House *Committee on Interstate Commerce*, Feb. 4, 1905.

The strongest argument for the exclusive contract lies in the improved character of the service rendered to fruit shippers, both as to availability of suitable cars, and as to character of the icing service. There has been conclusive evidence that the service in California when there were a number of competing car lines, was very unsatisfactory. Although five different refrigerator-car lines were operating there, yet scarcely a year elapsed without a shortage of cars at some time during the season, resulting in considerable loss to the growers. The competition among the various lines was very keen and large rebates on the refrigerator charges were made to the heavier shippers as inducements to use a particular line of cars. This state of affairs was of course deplorable, especially on account of the discrimination against the small growers, and on account of the general demoralizing influence on the fruit industry. The division of the business among these five different companies did not justify any one of them in going to the expense of erecting adequate icing stations and putting into operation a complete system of supervision, such as is needed for the handling of perishable fruits. Furthermore, no company could tell just how many of its cars would be needed during the season, and as these cars have to be " parked " or concentrated at shipping points before the opening of the season, constant errors were made in calculations, with a consequent shortage of cars at various times.

Since Armour has been granted an exclusive contract, however, all this has changed. The car line has been able to estimate the number of cars needed, and as it has been sure of the traffic, it has erected ice-houses, sent inspectors into the field, built repair shops for its cars, and given exceptionally good service. To quote from a report issued by the Sacramento Chamber of Commerce in 1903,—

> Therefore, in the judgment of your committee, better and cheaper refrigeration can be obtained by the fruit growers and shippers of California when operating with one line, where they are sure of first-class service and constant care of their fruit from the time it leaves California until it arrives at its destination, than they could by trusting to several refrigerator companies, no one of which could afford to provide as ample an equipment and equal service.[1]

Much the same story is to be told with regard to the conditions in Georgia before and after operation under an exclusive contract. In 1895, when the peach crop of that state was more than three times as large as the crop of any previous year, there were five refrigerator-car companies competing for the business,—namely, the California Fruit Transportation Company, International Fruit Dealers' Despatch, California Fruit Express, American Refrigerator Transit Company, and the Armour Car Lines, each one having contracts with individual growers to use its cars. None of these companies had ice-storage houses in the fruit district, but relied on the ice factories of Macon, Atlanta, and neighboring towns, to supply ice as needed. The existence of so many lines, each with a separate supply of ice, which had to be placed in the bunkers of the cars at different points, resulted in a large amount of unnecessary handling and switching of cars, as well as delay, interruption, and confusion. Before the season had progressed very far, the ice supply ran short, and a famine was threatened, with imminent danger of loss to shippers. Sometimes one car line would have a supply of ice, sometimes another, while the others would be without, and the company having ice would get all the business for a day or two. No company could be assured of any regular business from day to day, and the supply of cars was uncertain. Neither did the various lines have adequate facilities for re-icing en route, and many cars reached market poorly iced.[1]

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[1] Submitted to House *Committee on Interstate Commerce*, Feb. 13, 1905. This report gives a good description of the conditions in California as outlined above.

In view of these unsatisfactory conditions, the Central of Georgia Railroad, on whose lines the bulk of the Georgia peach crop originates, took steps to make some arrangement for the better handling of the crop, and addressed inquiries to some of the principal growers, asking them to state which refrigerator line they preferred. The answers to these requests were few in number and otherwise unsatisfactory, so the railroad decided to continue the competitive régime. The crop of 1896 was poor, and although the volume of business was less than half that of the preceding year, there was another ice famine with its attendant confusion and dissatisfaction. In 1897 the peach crop was a failure, and very few cars were shipped from the state.

The season of 1898 was very favorable to the peach industry, and the Central of Georgia Railroad viewed with apprehension the approach of the shipping season, and began once more to prepare for some arrangement whereby the crop could be adequately handled. It realized that local supplies of ice could not be relied on, and that it was necessary to have a large amount stored up in advance. It therefore turned to the private-car lines, and found in the first place that no line would pledge itself to make the necessary arrangements without an exclusive contract.[1] The railroad decided that this was reasonable, because it meant: first, the purchase and storing of an enormous quantity of ice in the peach district, and at the various re-icing stations along the route to market; second, the building of storage houses for this purpose; third, the erection of re-icing platforms; and fourth, the organization and maintenance of a force of employees to look after the loading, icing, and re-icing. Accordingly, an arrangement was made with the Armour Lines, as that company was found to be the best equipped for the service, and submitted to the principal growers. It is reported that at least ninety per cent of them were interviewed, and though there was some opposition, the majority of the growers favored the idea, believing that service was the all-important point to be considered. Accordingly the exclusive contract was definitely entered into in May, 1898.

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[1] Testimony of J. H. Hale before House *Committee on Interstate Commerce*, Feb. 8, 1905.

Even though the Armour Company did not have time to build storage houses, it contracted for all the ice it could procure in Georgia (where ice is artificial), and also shipped train-loads of natural ice from the northern states. The result was that the service was highly satisfactory, and the crop which was the largest in the history of the district, was handled much better than it had ever been before. The Armour interests furnished an abundance of evidence before the Senate and House Committees on Interstate Commerce in 1905, both through the actual appearance of fruit growers and also through numerous letters, to show that the fruit raisers of Georgia were extremely well satisfied with the arrangement. Furthermore, such testimony has not been confined to the shippers of the Georgia district, but much of it has come from other sections, including the Michigan fruit belt, where the agitation against the car lines has been the fiercest.

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[1] *A History of the Peach Industry in Georgia*, compiled by the Central Railroad of Georgia.

It is not to be understood, however, that this praise of the Armour service under exclusive contracts has been by any means universal among fruit growers. It may be well to mention in this connection a fact that the Refrigerator Car Lines Committee of the National League of Commission Merchants brought out in its annual report for 1905. Speaking of the Interstate Commerce Commission's investigation of the Michigan situation, it said:

> A large number of witnesses was in attendance from all parts of the country,—all witnesses on behalf of the people giving their time and paying their own expenses of every kind, including transportation and hotel bills, while the witnesses on behalf of the Armour Car Lines had all their expenses paid by that corporation, including transportation and hotel bills, and in addition thereto a *per diem*.

This fact undoubtedly accounts for the existence of so much testimony in favor of Armour, both in this, and in other investigations, and there would probably have been many more witnesses to denounce the car-line practices, if there had been someone to pay their expenses, *etc.* Nevertheless, those that have testified against the car lines have complained of the icing charge, and only rarely of the service rendered. In the vigorous attack made by the California

Fruit Exchange in its set of resolutions, nothing was said of the service. To be sure, one important grower from Georgia testified to the Senate Committee on Interstate Commerce that the Armour service had been very unsatisfactory in Northern Georgia,—that there had been shortages of cars, poor icing, and that some old, small cars had been furnished which would not hold the minimum load required.[1] There have been other complaints of this character, but they have been comparatively few in number, and it is safe to say that the substitution of the exclusive contract with Armour, for the old system of competition, has resulted in a vastly superior service.

Not only have various fruit growers expressed satisfaction with the Armour service under an exclusive contract, but there have been instances where they have actually solicited the railroads to make such contracts. For instance, the traffic manager of the Atlantic Coast Line, which carries a large part of the strawberry crop of North Carolina, testified before the Interstate Commerce Commission as follows:

> The first contract made with the Armour Company, which was executed in 1898, was made by the Atlantic Coast Line Railroad Company at the request of the Eastern Carolina Truck and Fruit Growers' Association. This association has a membership of about 1,000, representing possibly 80 or 85 per cent of the shipments moved. The secretary of that association furnished us with a copy of the following resolution adopted by the board of directors of the association: "Whereas, the Atlantic Coast Line has requested the Eastern Carolina Truck and Fruit Growers' Association to invite bids for refrigeration service; whereas various bids have been submitted; therefore, be it resolved that these various bids be turned over to the officers of the Atlantic Coast Line, and

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[1] Elkins Com. *Hearings*, vol. i, p. 392.

that they be informed of our preference for the Armour Line." [1]

Likewise, the traffic manager of the Southern Railway, which did not make an exclusive contract with Armour until 1903, having been opposed to such a practice up to that time, said, after describing the unsatisfactory conditions on his line under the competitive régime: "And so, altogether, the arrangement was unsatisfactory, certainly so far as our line was concerned, and the shippers themselves finally all expressed a preference for the Armour car." [2]

It may be well to add a word as to the attitude of the railroads toward the practice of entering into exclusive contracts with private-car companies. Needless to say, they have been actuated by a desire to build up the traffic in perishable freight along their lines, and for this reason have been anxious to give as efficient and as reasonable a service as possible. As has been shown above, various railroads, after allowing a number of private lines to compete, have come to the conclusion that the results aimed at could be best attained by giving all the traffic to a single car company. The reason that Armour and Company have in all important instances been granted this contract is that that company has had for years far and away the best and largest equipment, and the most complete system for looking after the buisness. As an officer of the Southern Railway said, "It is immaterial to the Southern Railway whether the cars furnished for the transportation of fruits, vegetables, and berries are owned by the Armour Car Line or not, so long as such company is able to furnish the required number of cars and they suit the shipper and conform to the rules of the Master Car Builders' Association." [1]

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[1] The growers in this instance had had an unfortunate experience in using the cars of an inferior company the previous year, and were at first in favor of having two or three competing companies, but on the advice of the railroad, they decided they did not want more than one, and entertained bids as above. Three or four different companies responded with bids. *Cf.* testimony of H. M. Emerson before Interstate Commerce Commission, Oct. 18, 1905.

[2] Testimony of L. Green before the Interstate Commerce Commission, Oct. 18, 1905.

Although the railroads were at first apparently opposed to entering into exclusive contracts, their attitude changed on account of the failure of competition to render efficient service, as shown above. At present, there is hardly an important fruit-carrying railroad in the country which does not either own its own equipment, or allow some one private-car company to operate under an exclusive contract. The railroads not only find that the service is better to all parties concerned, but they also find it more economical. For instance, at the end of the season in 1895, the Central of Georgia had a large number of empty refrigerator cars left on its lines, owned by different companies, which it had to return to connecting roads, paying mileage in both directions. With only one company doing business, this difficulty, as well as extra switching service, *etc.*, is obviated. Armour surely has not power enough over the railroads, especially those that are situated in remote parts of the country, to force them unwillingly into these contracts, and therefore it is safe to say that, judging from the testimony and practices of the railroads, they favor the exclusive contract.

These arguments have been discussed at some length because exclusive contracts have been so bitterly attacked, and because they play such an important part in the problem. To summarize, the principal objections can all be traced to the fact that high icing charges are apparently due to the monopoly enjoyed under the contracts; and the principal arguments in favor of such contracts can be reduced to the fact that the existence of a single car line in a given territory results in the most efficient service to all parties concerned. What is the conclusion to be drawn: are exclusive contracts to be denounced because they make possible higher icing charges, or are they to be commended because they give the efficient service so necessary to the transportation of perishable products? Of course, if it could be proved that icing charges are uniformly reasonable, the main argument against the contracts would be swept away, and there would be left only the abstract argument as to the advisability of allowing monopoly in any form. As a matter of fact, to anticipate a little, the icing charges have not been proved uniformly reasonable, and in some cases, the consensus of opinion has been that they are quite the opposite. At any rate, the power to fix these charges has lain entirely in the hands of the car line, and not in those of the railroad, and the charge has been levied separately. It is in this arrangement that the source of the evil is to be sought, especially since the car lines have always denied to the Interstate Commerce Commission jurisdiction over the icing charges, on the ground that the refrigeration service is a local and private one, and not a part of interstate commerce. As will be shown at greater length in the last chapter, the Hepburn Act of 1906 made the service of refrigeration a part of transportation, and thus brought it under the purview of the Commission, as though it were a part of the railroad freight rate. This change in the law has practically removed the principal objectionable feature of exclusive contracts, even though the relief does not seem (in

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[1] Testimony of L. Green before the Interstate Commerce Commission, Oct. 19, 1905.

1908) to have been immediate, and the car lines still determine the icing charge to be published by the railroad in its tariff.

The legality of these contracts has not been seriously questioned, and the attorneys of the Armour Car Lines have cited numerous cases as precedents to prove their lawfulness. After referring to the common-law liability of railroads to furnish suitable equipment, the Interstate Commerce Commission said in this connection:[1]

> The respondent railroad companies may provide refrigerator cars by purchase or by lease, and if the latter plan is adopted, they may make contracts with one company which exclude the use of cars owned by other companies.

If the railroads find it to their advantage to hire cars of only one company, there is no reason, either legal or economic, why they should not be allowed to do so. Now that the greatest abuse which has grown out of exclusive contracts has been made subject to regulation, there is good reason to believe that the condemnation of these contracts will cease to a great extent in the future.

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[1] Michigan Car Lines Case, *Int. Com. Rep.*, 1904, p. 300.

CHAPTER V

REFRIGERATION CHARGES

THE revenues of private stock-car and tank-car companies are derived mainly from one source—mileage rentals; while the revenues of refrigerator-car companies are generally derived from two sources—mileage rentals, which the railroads pay, and the charge for the refrigeration service, which shippers pay. The methods of determining and imposing this icing charge are very diverse. In the case of railroad ownership of refrigerator equipment, where the railroads do the icing themselves, there are, roughly speaking, four different ways of levying the charge: first, the most common practice is to charge according to the quantity of ice used, as for instance, $2.50 per ton, which is the usual rate east of the Missouri and north of the Ohio; second, the ice used in the initial icing is sometimes charged for, and that used for re-icing en route furnished free; third, some roads levy a fixed charge per car, irrespective of the amount of ice used; and fourth, some roads make no extra charge for icing, but expect to be reimbursed from the freight rate. This last method is often applied to the dairy business, which requires a comparatively small amount of ice.

In the case of private cars, many of the smaller companies have nothing to do with the icing, and the railroads over which they operate attend to this, and charge therefor, as if they owned the cars. The large packers own their equipment and generally do their own icing, but when re-icing is done by the railroads at points where the car companies do not have icing stations, the railroad usually furnishes the ice on a tonnage basis. The custom of the large private companies which are in the fruit traffic is to charge a certain amount per car, or per package of freight. These lump charges have been the ones especially complained of as unreasonably high in many instances, and must be subjected to an impartial examination. The car companies decide what these icing charges shall be, and have generally had them published, when published at all, as separate and distinct from the freight rates of the railroad tariffs.[1] The railroads, however, have made the collections from their shippers, placing the freight and refrigeration charges on the same freight bill, and turning over the sums paid for icing to the car companies.

It must be remembered that this whole method of refrigeration in transit is of very recent origin. Even during the eighties there were but few refrigerator cars used in the carriage of fruit and vegetables, and it was not until after 1890 that the traffic began to attain any considerable size. Taking into account this fact, it may be said that icing charges have shown, on the whole, a rather rapid decline since the time when they were first imposed. Almost the only exceptions have been since 1900, when they were raised in some parts of the country under exclusive contracts. At first, icing charges were very high; it is said that in the year 1885 the California Fruit Transportation Company was accustomed to charge $200 or $225 for the use and icing of a car from Sacramento to Chicago. In 1890 the charge had been reduced to about $150 or $175.[1] During the nineties the rates continued to decrease, although not at such a rapid pace, and reductions were also effected by increasing the car-load minimum, making the same charge apply to more weight, as well as by changes in the car-load rate itself. The following table shows the reductions in icing charges per hundred pounds of freight made by the Continental Fruit Express on California oranges and lemons from 1892 to 1900, inclusive:[2]

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[1] How this arrangement has been changed by the Hepburn Act of 1906 will be described in chap. viii.

Refrigeration Charges per 100 lbs. from California points to	Rate per 100 lbs.					Reduction in charges per 100 lbs. from 1892 to 1900.	
	1892 1893	1894	1895 1896 1897 1898	1899	1900		
	20,000 lbs. min.	24,000 lbs. min.	24,000 lbs. min.	24,000 lbs. min.	26,000 lbs. min.		
	Cents	Cents	Cents	Cents	Cents	Cents	Per cent
Denver	37.5	31.25	25.0	20.3	19.2	18.3	48.8
Omaha, St. Joseph, Kansas City	37.5	31.25	25.0	25.0	23.1	14.4	38.4
Chicago, St. Louis, Minneapolis	37.5	31.25	31.25	31.25	28.8	8.7	23.2
New York, Philadelphia, Washington	45.0	37.5	37.5	37.5	34.6	10.4	23.1
Boston, etc	45.0	37.5	37.5	39.6	36.5	8.5	18.9

It will be seen from the above table that the reductions in the icing charges from 1892 to 1900 varied from about 50 to less than 20 per cent, the larger reductions being for the shorter hauls. Up to 1895 there were two blanket rates, one applying to all territory west of and including Chicago, and the other to all territory east of Chicago. It is thus evident that distance and actual amount of ice used had but little to do with the determination of rates. In 1895 rates to Missouri River points and west thereof were lowered, making three groups, and in 1899 all points in the country were divided into eight groups,[1] distance thus entering more and more as an element in fixing the charge. In 1900, the charge for icing a car to Chicago was $75, the same that it was in 1892, but at the later date it applied to 26,000 pounds of fruit, while at the earlier date it had applied to only 20,000 pounds, a fact which accounts for the reduction shown in the table. Although it was testified before the Commission that the cost of icing the larger cars was a little greater, the difference was probably not great enough to increase materially the cost of the service. Accordingly, from the standpoint of the car company, this could scarcely be called a reduction,—at least, not a voluntary one.

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[1] I. C. C., Oct., 1904, *Hearings*, pp. 33–34.

[2] *Brief for Continental Fruit Express*, intervenor in Southern California Fruit Exchange *vs*. Southern Pacific Company *et al.*, tried before the Interstate Commerce Commission, March 30–31, 1900.

The figures given above deal with but one car line, the Continental Fruit Express, which was acquired by the Armour interests about 1900. There has been other evidence before the Congressional committees that charges were higher during the nineties than those given in the table, and that there was a more considerable decrease after the Armour Company received an exclusive contract. At any rate, these figures illustrate the general trend of refrigeration charges, and afford an idea of the relation between these charges and the distances the cars travel. The Armour California tariff schedule for 1906 divided the country into practically the same eight groups that the Continental Fruit Express did in 1900, but made different rates according to the routing.

Although icing charges are much lower than they were at first, they have been subject to bitter complaints in

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[1] Three groups are omitted from the table.

Michigan, California, Georgia, and numerous other sections. Let us look at the Michigan situation first. Prior to 1900, the Pere Marquette and Michigan Central Railroads furnished refrigerator cars, and the railroad rate included the necessary icing. Beginning in that year, the railroads inaugurated the practice of charging, in addition to the railroad rate, $2.50 per ton for the actual amount of ice used. This arrangement lasted until 1902 when contracts were made with the Armour Car Lines, whereupon icing charges were raised all the way from 100 to 300 per cent. Since the icing was free previous to 1900, the cost of transportation to the shipper was increased by the full amount of the icing charge. Railroad rates were not only not reduced in consequence of the imposition of the higher icing charges, but in some instances they were even raised between the years 1900 and 1904.[1]

The extent to which icing charges were raised will be shown by the following. As they varied with the amount of ice used before 1902, the charges for that time are rough averages. From Michigan points to Duluth, Minn., the charge had varied from $5 to $15 per car, and in 1902 it was raised to $45. Other changes were these: Michigan points to Chicago, from $7.50 to $25 per car; Michigan points to Philadelphia, from $20 to $50; Michigan points to Boston, from $20 to $55; Michigan points to Pittsburgh, from $5 to $35. The numerous complaints of shippers finally culminated in an investigation by the Interstate Commerce Commission, undertaken upon its own motion and held in Chicago in June, 1904.

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[1] Brief of Martin S. Decker, attorney for the Government in the Michigan Fruit Case. *Cf.* also testimony of E. M. Ferguson, Elkins Com. *Hearings*, vol. i, p. 319.

In this hearing the terms of the exclusive contracts were made public, and the facts as to the increase of icing charges established. It was found by the Commission that the average cost of ice in Michigan was approximately $2.00 per ton, and that although it was somewhat greater in territory which the cars traversed in reaching their destinations, the average cost was somewhere between $2 and $2.50.[1] Expense bills were submitted, giving the number of tons of ice used on specific shipments, and showing that the arbitrary Armour charges were entirely disproportionate to the cost of ice.

In defence of these icing charges of the Armour Car Lines, Mr. Robbins, their president, advanced the following arguments: that the old railroad charges were for cars of small ice capacity, which were generally unfit for fruit traffic; that previous to the exclusive contract there had been a charge to the shippers ranging from $5 to $20 for the mere use of Armour cars, and that the railroad had either paid the car line for the ice that it provided, or itself furnished the ice; and that when the contract was made, whereby the car line furnished all the icing, the rates were merely advanced to cover the extra expense, causing no increase in the profits of the car company.[2] It was shown also that the conditions in Michigan were different from those in any other part of the country, because in no other instance had a railroad furnished free ice for fruit shipments, and consequently that the imposition of regular icing charges had appeared to be an unreasonable advance. It was maintained that the new rates were no more than enough to cover the cost of ice, and the expenses of supervision and incidentals. Furthermore, the testimony of a number of prominent peach growers was offered to the effect that they were better satisfied to pay the higher charges in order to insure the well-nigh perfect service afforded, than to pay the lower charges, and have their fruit reach market in poor condition. Many of them said that their profits were higher per car in spite of the advanced icing charges, because of the better service.

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[1] 11 *I. C. C. Rep.*, p. 132.

[2] Testimony of G. B. Robbins before House Com. on Int. Com., May 15, 1905. Also testimony of same witness in Elkins Com. *Hearings*, vol. iii, p. 2371. Also Mr. Armour's book, p. 253.

The opinion of the Commission in this case has been quoted in connection with exclusive contracts, and it was seen there that the icing charges were declared unreasonable. This was expressed only as an opinion of the Commission, and no formal order was issued. In May, 1905, witnesses were again called. Then it was that the Michigan Central announced the discontinuance of the Armour contract and the return to the old rates on a tonnage basis, and that company was dismissed from the proceeding. Inasmuch as the Pere Marquette promised reductions for the season of 1905 and the discontinuance of the Armour contract in 1906, the Commission contented itself with a statement of its opinion that $2.50 per ton was an adequate charge for icing, because this left something over and above the actual cost of the ice to cover incidental expenses of supervision, *etc.*, and also drew up a schedule of rates per carload which it considered reasonable. We append a table showing the icing charges per car of peaches from Michigan to various points, as they existed at first under the exclusive contract, as they were after being reduced, and also the corresponding rates which the Commission declared to be reasonable.[1]

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[1] These figures are selected from the revised brief of Martin S. Decker on behalf of the Government, and from the report and opinion of the Commission in the Michigan Fruit Case, 11 *I. C. C. Rep.*, p. 129 *et seq.*

Michigan points to	*Icing charges in 1903 and 1904.*	*Icing charges as reduced in 1905.*	*Icing charges declared reasonable by I. C. C.*
Albany	$42.50	$35.00	$21.25
Baltimore	50.00	40.00	25.00
Boston	55.00	45.00	27.50
Denver	50.00	40.00	25.00
Duluth	45.00	35.00	22.50
New York	50.00	40.00	25.00
Philadelphia	50.00	40.00	25.00
Pittsburg	35.00	27.50	17.50

In its estimate of reasonable charges, the Commission allowed somewhat more than $2.50 per ton of ice actually used, and in that way made them, in its opinion, "amply sufficient to cover all necessary inspection and to allow the carrier a safe margin of insurance against whatever liability it assumes in undertaking the service of refrigeration." Taking everything into consideration, the opinion of the Commission seems to have been just. There is no question but that the service was greatly improved under the Armour contract; more costly equipment was furnished and the expenses of supervision were greater. Even though the shipper was better off than under the old régime, that is no reason why he should pay more than a reasonable amount for refrigeration. It must be remembered that over and above the earnings from refrigeration, the car line receives from the railroad three-quarters of a cent mileage for each car, loaded or empty, and on a round trip to Boston, for example, calling the distance 2000 miles, this means an additional revenue of fifteen dollars. The fact that the car line receives this compensation, as well as a payment which has often been twice the actual cost of the ice used, leads to the conviction that the much-discussed icing charges of the Armour Car Lines under exclusive contracts with the Pere Marquette and Michigan Central Railroads were unfair and unreasonable.

The icing charges levied by Armour and Company appear extortionate in comparison with the charges of railroads which furnish refrigerator cars and do the icing themselves. This is shown in a striking way in connection with charges from southern and middle-southern states, where a comparison with Illinois Central Railroad charges is possible. The Louisville and Nashville Railroad formerly furnished refrigerator cars to fruit shippers, and charged $27 per car from Alabama and Mississippi points to Chicago. Armour was given an exclusive contract on this road and raised the price for icing to $60 and $75, causing an outcry from strawberry growers of those sections.[1] A Chicago firm received a shipment of tomatoes in an Armour car with a charge of $73.92 for icing; on the very same day it received a like car of tomatoes over the Illinois Central, on which the icing cost was only $15,—and Memphis is a few miles farther from Chicago than Gibson.[2] In order to bring about a test case, the National League of Commission Merchants instructed the consignee of the above cars to refuse to pay the Armour icing charge. The railroad accepted the payment of the freight rate, and sued for the refrigeration charge. The commission merchant lost in this case, for it was held by the court that the icing charges were known to the shipper before the shipment was made, and that the fact that the shipment was made constituted an agreement to conform to the established rate. A like refusal was made by another Chicago firm to pay icing charges of $45 on a car of melons from Poseyville, Indiana, the freight rate in this case being only $39.15. In this instance the Armour Car Lines, instead of the railroad, sued for the payment, and the decision of the court was likewise against the fruit dealer. In both cases it is claimed that the railroads really performed the icing, and that it did not cost more than $15 a car.[1]

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[1] I. C. C., Oct., 1904, *Hearings*, p. 205.

[2] *Report of the Refrigerator Car Lines Committee*, National League of Commission Merchants, 1905, p. 7.

In 1903 a dealer in Cincinnati received 14 carloads of pineapples from Mobile, Alabama, with a charge of $45 a car for icing. At the same time he received ten carloads from New Orleans via the Illinois Central, on which the average charge was $11.37 a car, and the distance to Cincinnati from New Orleans is greater than from Mobile. The dealer refused to pay the Armour charges, and the Louisville and Nashville threatened to take away his credit and sue him. Finally, after a few months, the railroad said that if he would pay the full amount of the bill, it would refund all in excess of $11.37 a car, which the dealer had offered to pay, and this was done. At this same time, Armour and Company were themselves dealing in pineapples in Cincinnati, and selling in competition with the above dealer at an advantage of about $35 per car.[2]

These relative rates have never been investigated to any extent. Mr. Robbins sought to justify the high charges, but made a rather lame explanation, failing to advance any valid reasons.[3] The Illinois Central has an ample equipment of excellent refrigerator cars, and gives good service. One thing that can be said which partially explains the above disparity in rates, is that the Illinois Central does not fix its icing charge so as to cover the whole cost of the refrigeration service, but makes up for some of this extra expense from its freight rate.[1] Although a private-car company has to charge something over and above the actual cost of the ice in order to cover the expenses of the special service that it offers, it is not justified in allowing such a wide margin as is revealed in the above cases.

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[1] *Report of the Refrigerator Car Lines Committee*, National League of Commission Merchants, 1905, p. 6.

[2] I. C. C., Oct., 1904, *Hearings*, p. 106.

[3] Testimony before House Com. on Int. Com., Feb. 4, 1905.

The history of icing charges in California up to the year 1900 has been dealt with in the first part of this chapter. Although the charges of that year showed a substantial reduction as compared with those of ten years before, complaints were filed with the Interstate Commerce Commission by the Consolidated Forwarding Company and the Southern California Fruit Exchange, and an investigation followed. The main questions at issue involved first, the reasonableness of the freight rate as fixed by the Santa Fe and Southern Pacific Railroads; second, the reasonableness of the refrigeration charges; third, whether the defendant railroads had unlawfully agreed to pool their traffic in citrus fruits or divide the earnings therefrom; and fourth, whether the regulation of the defendant carriers in reserving to themselves the right to route shipments over connecting roads was unreasonable under the Interstate Commerce Act. The Continental Fruit Express and the Armour Car Lines intervened on behalf of the defendants and furnished valuable information concerning the cost of icing.

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[1] This was told the writer by an official of the railroad in a personal interview.

During the hearings it was testified that at Los Angeles ice cost $4.50 per ton, at Sacramento $5.75, at points nearer the Rocky Mountains $3, and east of the mountains $2.50. Car line officials estimated the incidental expenses, including labor, inspection, *etc.*, at $15 a car per trip. With these figures as a basis, the Continental Fruit Express estimated that the total cost of refrigeration from Los Angeles to Chicago via the Ogden route was $59.50.[1] The largest item was the cost of five tons of ice at the initial icing. It was further shown that the season was comparatively short, that it ordinarily took sixty days for a car to make a round trip to the East, and that the cost was even greater over the Southern Pacific, or El Paso route, because that line runs through a warmer climate where more ice is needed. Officials of other car lines that had operated in California estimated their expenses per trip at from five to fifteen dollars less than the above figures, but their cars were of smaller ice capacity and their companies did not have the re-icing facilities that the Continental Fruit Express had. Taking these things into consideration, it was argued that the profits from refrigeration were not unreasonable, and that the rate of $75 to Chicago, for example, was fair.

On April 19, 1902, the Interstate Commerce Commission filed its report and decision,[2] but dwelt mainly on the other questions involved and stated that the evidence was unsatisfactory as the basis for a definite conclusion on the reasonableness or unreasonableness of icing charges, and reserved its opinion on that point for a subsequent hearing. The supervision of the Commission over icing charges was contested by the defendants on the ground that the service was local and incidental and not a part of interstate commerce, and this question further complicated the case. In April, 1903, a further investigation was held at Los Angeles.

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[1] Brief of attorneys for Continental Fruit Express, containing extracts from hearings.

[2] 9 *I. C. C. Rep.*, p. 182 *et seq.*

During the interval between the two hearings, the Santa Fe, which had formerly used Armour cars under an exclusive contract, put into operation the equipment of the Santa Fe Refrigerator Despatch, and the icing charges both over the Santa Fe and the Harriman lines were reduced. The following table shows the icing charges from Southern California to eastern points as they were in 1900 and in 1903.[1]

SUMMER REFRIGERATION CHARGES

From California points to	*1900 per car*	*1903 per car*
Denver	$50.00	$50.00
Kansas City	60.00	60.00
Des Moines	70.00	62.50
Chicago, St. Louis	75.00	62.50
Indianapolis	80.00	67.50
Buffalo, Detroit, Cleveland	85.00	72.50
New York, Philadelphia	90.00	75.00
Boston	95.00	77.50

These reductions were declared by the Commission to be substantial. To quote from the report:[2]

> The actual cost of the ice delivered in the car tanks is stated in testimony to be $47.04 when the car is destined to the $50 group shown in the foregoing table; $54.32 for the $60 group; . . . and $64.53 for the $75 group. . . . The refrigeration charges now applied over either of the defendant lines

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[1] 10 *I. C. C. Rep.*, p. 609.

[2] *Ibid.*, pp. 610–611. This whole California matter is commonly called the "Orange Rate Cases;" the final opinion was not delivered until 1905.

upon this traffic are, in proportion to the distance the traffic is hauled, much lower than those imposed upon fruit traffic between points east of the Mississippi River where the cost of ice is much less than it is in California or in numerous localities west of the Missouri River upon the lines of the Southern Pacific and Sante Fe Systems. In view of the reductions in the refrigerating charges since the first hearing of these cases, and the insufficiency of the evidence as to cost of icing cars, we do not feel justified in condemning the present refrigerating charges as unreasonable.

The decision of the Commission was undoubtedly just. Taking into account the high cost of ice in California and the long haul to eastern points, with the consequent need of re-icing facilities, the California rates were very much lower than the Armour rates in Michigan and in the Missisippi Valley, and there has been no such striking divergence between the actual computable cost of ice and the charge imposed on the shipper. In the testimony offered before the Commission icing charges from California to New York were compared with those on strawberries from North Carolina to New York: [1]

	Distance.	*Rate per car per mile.*	*Rate per ton per mile.*
Los Angeles to New York	3403 miles.	2.64 cts.	.20 cts.
Wilmington, N. C., to New York	643 miles.	10.26 cts.	.79 cts.

Although this comparative statement undoubtedly exaggerates the difference between California charges and Armour charges in the East, approximately the same results may be shown in other instances.

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[1] Brief of attorneys for Continental Fruit Express in Orange Rates Case.

The reduction in California icing charges appeased the fruit growers of that territory to a certain extent, but complaints were soon renewed. The Sacramento Chamber of Commerce in a report in 1903 upheld the charges as reasonable, while at the same time numerous growers were denouncing them. In 1906 the California Fruit Growers' Exchange passed resolutions declaring the charges "exorbitant." Nevertheless, as stated above, the charges seem to have been upon the whole reasonable, and the attacks against the car lines on this score have been unjust. Since these investigations, the Armour cars have been superseded by refrigerator equipment built and owned by the Harriman Lines, so that there are no longer any strictly private cars operating in California. In accordance with the recent law, the freight and icing rates are published by the railroads, but the total cost of transportation to the shipper remains about as it was.

One other interesting comparison that was brought out in the California hearings was that between the charges that have been under discussion and the icing charges on the Northern Pacific Railroad from Oregon and Washington points to the East. There, the practice has been to make a charge only for the initial icing, the railroad furnishing ice en route free of cost. Under this arrangement the whole icing charge varied from $10 to $17.50, and on prunes and some other fruits that were raised in both sections, the California growers were put to a great disadvantage in eastern markets. The Northern Pacific owns refrigerator cars, and absorbs part of the expense of icing in its freight rate, just as the Illinois Central does. It was pointed out by the defendants in the California case that the country traversed by the Northern Pacific is much colder than the Southern

Pacific territory, and that there was an abundance of natural ice. It was further stated that the traffic was small, and that the railroads of the northern section were granting low rates in order to foster the fruit industry along their lines, so that the conditions were not at all analogous.

As for icing charges in Georgia, it has been stated that previous to 1898 the rate to New York was $90 per car, and that under the exclusive contract it had been lowered first to $80, and later to $68.75. The Armour tariff on peaches for 1906[1] showed package rates of 11½ cents per crate to Richmond, Virginia, 12½ cents to New York, Philadelphia, Washington and St. Louis, 14 cents to Buffalo, Albany and Boston, and 15 cents to Minneapolis and St. Paul. The minimum car load was 550 crates, which, multiplied by 12½ cents, makes $68.75 per car to New York. These charges have not been the subject of serious complaint, although they have been attacked as exorbitant by some. Mr. J. H. Hale, reputed to have been the largest individual peach shipper in the United States, testified before the House Committee on Interstate Commerce[2] that on the whole icing charges were satisfactory. He said that during one season he had made a special arrangement with the Armour Company, whereby he paid $10 for the use of a car, and then paid for the actual amount of ice used on a tonnage basis. In this way he saved as much as $20 a car on some shipments, while on others his expense was higher than the regular rate, so that he did not save enough to make it worth while, and discontinued the arrangement.

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[1] *Refrigeration Tariff* of the Fruit Growers' Express, no. 726.

[2] Feb. 8, 1905.

It was testified before the Senate Committee that in 1898 ice had cost about $5 a ton in Macon, Georgia.[1] In 1899 the price of ice to the refrigerator line was reduced to $3 per ton, and it was rumored that in 1904 Armour was buying ice in Georgia for $2.50 per ton. On this basis it was declared that the icing charges in 1905 were exorbitant, inasmuch as ten tons of ice was a liberal estimate of the amount consumed in a trip to New York, and that counting in the expense of loading, the extreme cost to the car company could not have been more than $35 a car. If this estimate is correct, it is evident that the car line was receiving very generous compensation for supervision and incidentals, and was making a handsome profit therefrom. Even if the estimate should be a little higher, there would still be reason to suppose that the charge was large as compared with the actual expense.

Many complaints have been made among Georgia growers that the minimum of 550 crates is too high, because some of the smaller cars that Armour has furnished would not carry that amount safely, the upper tier of packages reaching market in poor condition. As a result of this, many growers have shipped less than 550 crates per car in order to avoid the necessity of loading five tiers high, but have had to pay icing charges on the established minimum.[2] This practice on the part of the car line was eminently unjust, but there has been a steady improvement in this direction through the placing of large cars in the service. The freight rate of the railroads on peaches has been the object of attack by shippers, and of consequent investigation by the Interstate Commerce Commission which, in its report, held that the rate to New York was not unreasonable or unjust, but that an arbitrary charge of $80 per car exacted by the New York, New Haven, and Hartford Railroad between New York and Boston was unreasonable and unjust.[1]

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[1] Testimony of J. J. Waxelbaum, Elkins Com. *Hearings*, vol. i, p. 395.

[2] *Ibid.*, p. 394.

To make a complete study of this question of icing charges, it would be necessary to examine them in still other parts of the country, but enough have been considered to enable us to draw some general conclusions. Of course the great difficulty in dealing with the subject is the lack of definite information. Estimates of the cost of the service have been given, but no definite figures have been advanced in the numerous Government hearings to show precisely what the profits of the private-car companies are from either icing or mileage. From the evidence at hand, however, it is safe to say that in some cases the icing charges of private-car lines are unreasonably high, thus placing an unfair burden on fruit growers and unduly augmenting the profits of the car lines, while in other cases these charges are fair and reasonable. The Interstate Commerce Commission said in its annual report for 1905 in this connection:[2] "extended investigations by the Commission have led to the conclusion that the charges imposed are, in some cases at least, exorbitant, and that those charges are not uniformly exacted." To solve the problem, therefore, some uniform method of levying the icing charge, so as to make it conform more directly to the actual cost of the service, should be adopted.

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[1] The Georgia Peach Growers' Association *vs.* Atlantic Coast Line. 10 *I. C. C. Rep.*, p. 255. This report gives a good description of the marketing of the Georgia peach crop.

[2] Page 7.

The agitators against private cars, however, have not been reasonable in their demands for a refrigeration rate which shall cover only the actual cost of the ice. They claim that the mileage received by car companies is sufficient to cover the other costs of the service. When these earnings from mileage are more than enough to cover interest on capital invested in the cars, repairs, and depreciation, there is some ground for this contention. Whatever these earnings are on beef cars and other refrigerator cars, it is extremely doubtful if they are sufficient in the fruit traffic to leave a surplus that can be used in defraying icing expenses to any extent. Fruit cars are idle a great deal of the time between shipping seasons, they have to be "parked" in the fruit region before active shipping commences, and the demand for them is uncertain owing to frequent crop failures. In view of these circumstances, it is perhaps fair to accept the statement of car-line officials that car-mileage in the fruit service is not sufficient to cover the incidental expenses of refrigeration.

There have never been given to the public any figures to show exactly what the expenses of refrigeration over and above the actual cost of the ice are. As already pointed out, they must include the cost of labor in handling the ice and loading the cars,[1] and the cost of supervision and inspection along the route. Icing platforms and storage houses have to be erected, and interest, depreciation, and taxes on various properties have to be considered.[2] The whole business is a fluctuating and hazardous one, and sometimes ice that has been stored previous to the fruit-shipping season has been wasted on account of crop failures. For instance, in 1889 the Armour lines shipped ice from Maine by steamer to Georgia, and stocked their newly-built storage houses, but on account of a late frost the crop was a failure, no cars were shipped, and the ice was a total loss.[1] Another item of expense to the car lines is in the payment of claims for damages due to inefficient refrigeration and lack of a sufficient number of cars. In their exclusive contracts Armour and Company relieve the railroads from liability to losses of this kind, and assume it themselves. It has been testified that in one year Armour settled claims of over $80,000 in North Carolina due to a shortage of cars, and the reason for this was said to be a congestion in freight yards, which prevented the arrival of the cars on time.[2] Furthermore, the whole system of refrigeration in transit is a "business in itself," as the President of the Santa Fe Refrigerator Despatch declares. Even where a railroad owns refrigerator equipment and has considerable fruit traffic, it has been found necessary to maintain a separate organization of inspectors in order to make the service efficient. One other point on the car line's side of the case is the fact that nearly 50 per cent of the traffic in refrigerator cars moves under ventilation,[3] without the use of ice, and the only revenue that the car lines obtain therefor is the mileage rental.[4]

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[1] In some sections, as in Georgia, Armour men load the fruit into the cars, placing it in such a way as to secure the best ventilation and refrigeration.

[2] *Cf.* testimony of Urion, Elkins Com. *Hearings*, vol. iv, p. 3659.

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[1] Testimony of G. B. Robbins before House Committee, Feb. 4, 1905.

[2] A. R. Urion before the Interstate Commerce Commission, Oct. 18, 1905.

[3] Statement of W. B. Leeds, President of the Santa Fe Refrigerator Despatch, in a personal interview.

[4] The writer has been told by an official of one of the western railroads that Armour and Company try to collect an arbitrary sum, usually $15,

It seems rather strange that the car companies have not made more use of this fact when they have been trying to justify their position.

How, then, shall the icing charge be levied so as to cover these incidental expenses as well as the actual cost of the ice, and at the same time lead to no unreasonable profits for the car lines? The charge per car has its advantages, and not much objection can be made to it in some parts of the country, as in Georgia, where the short peach season comes in midsummer, and where a fairly uniform amount of ice is used on all shipments. In Michigan, however, peaches are shipped as late as October, and cool weather diminishes the shrinkage of ice. Armour and Company have met this condition by publishing what they call a "half-tank icing rate," much lower than the regular charge, to be used at the option of the shipper. On the whole, however, this arbitrary charge per car often does not show any just relation to actual cost of service, and frequently results in the shipper's having to pay much more than that service is worth. In one instance it was found that in a car, on which there was a charge of $67.20 for icing, there had been but 4,280 pounds of ice used.[1] The same objection may be urged against a per package rate or a rate per hundred pounds of freight. It seems as though the rate ought to be based in some way on the amount of ice used, for this constitutes by far the largest part of the cost of the service. This could be done by charging for

from the railroads for the use of a car in winter when there is no icing charge, and that although some roads probably pay it, his company always throws the bills into the waste-basket. He further said that they had never been pressed for payment.

[1] *Report of the Refrigerator Car Lines Committee*, National League of Commission Merchants, 1906, p. 8.

ice on a tonnage basis, and by making an extra charge for the use of the car to cover incidental expenses. This method has been suggested by estimates that have been made by car-line officials as to the amount of these incidental expenses: in one case, the Continental Fruit Express reckoned it at $15 on a trip from California to Chicago;[1] in another, Armour and Company arranged with the largest individual shipper in Georgia to let him have cars for $10 a trip, and then charged him for the actual amount of the ice used.[2] This scheme would be in line with the general practice of the railroads of charging the bare cost of the ice; it ought to satisfy the agitators against private-car-line practices who clamor for a rate based on the amount of ice used, and it would provide for the incidental expenses of the car line for inspection and supervision.[3]

The question of refrigeration charges will probably give less trouble in the future than it has given in the past, because the icing service has been made a part of transportation by federal legislation, and the railroad is made responsible for it, just as for the carriage of freight. Through this change, shippers have recourse to the Interstate Commerce Commission to determine the reasonableness of the transportation rate, including the icing charge. This phase of the question will be dealt with in the last chapter.

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[1] *Cf. supra*, p. 128.

[2] *Cf. supra*, p. 124.

[3] Mr. E. M. Ferguson, Chairman of the Transportation Committee of the Western Fruit Jobbers' Association, and until recently president of that organization, advocates a fixed icing charge per car, or per hundredweight of freight, in preference to the per ton of ice basis. He argues that the latter method does not work satisfactorily; that it leaves open an avenue for fraudulent and careless weighing of ice, that it makes it impossible to know beforehand what the icing charge will be, and that it would be impossible to reach such a charge under the law. As intimated in the text, the lump-charge per car has many advantages, especially in sections where the amount of ice varies but little with different shipments, but it would seem that where the amount of ice does vary, a charge varying with the actual amount of ice used would be the ideal way. This is also the view of a great many fruit dealers, but Mr. Ferguson's views are entitled to consideration, as he is one of the best qualified men in the country to speak on the subject. *Cf. Report of Transportation Committee*, Western Fruit Jobbers' Association, Dec., 1907.

CHAPTER VI

The Earnings of Private Cars

The earnings of private-car companies consist mainly of the mileage rentals received from the railroads, in some cases augmented by compensation for refrigeration service, and in a few cases by commissions on the freight rate. Of these three sources of revenue, commissions play an important part in comparatively few instances, icing charges are a source of profit only in the fruit and vegetable traffic, while the revenue from mileage rental is received by all private cars, and, in the majority of cases, is the only source of return. Computations of this income can be but approximate, owing to the scarcity of definite material. Although some companies have testified as to their earnings in government investigations, the more important lines have refused to do so, on the ground that they are not common carriers, and that strictly private companies should not be asked to divulge their earnings to the benefit of competitors. The Armour Car Lines have consistently avoided the imparting of any information whatsoever which could be used in a definite estimate of their earnings. Sometimes their representatives while on the stand have claimed ignorance as to mileage and earnings, and at other times they have merely refused to state them. The answers of Mr. Robbins, President of the Armour Lines, before the Senate Committee on Interstate Commerce are characteristic.[1]

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[1] Elkins Com. *Hearings*, vol. iii, p. 2409.

Question: Have you any way of estimating the mileage made by any one of your cars during an average year, as a basis for ascertaining the mileage earnings of the refrigerator cars per annum?

Answer: I have no figures on that subject.

Question: Does the company keep no figures that would indicate the earnings of those cars?

Answer: We have figures of our own earnings, but I wish to call your attention to the fact that we are a private-car line doing a private business, and our earnings for valid reasons, I think, ought not to be exposed to the public.

* * * * * * *

Question: Have you any objections to stating the average mileage of those cars in the course of a year, according to your books?

Answer: I would rather not go into the question of earnings.

The Interstate Commerce Commission as early as 1889 referred to the earnings of private cars as very profitable. It cited the case of the cars of three shippers in Chicago, which traveled 7,426,406 miles in nine months, and earned $72,945.97 in mileage, or about the cost of 81 cars. The mileage was one cent per mile most of the time, and three-quarters of a cent the rest of the time. It stated that refrigerator cars run on fast time and make four times the mileage of ordinary freight cars, and that sometimes a car pays for itself in three years.[1] In 1891 the Commission had occasion to investigate the practices of the Lackawanna Live Stock Express, a stock-car line of 250 cars, and found that in two years this company had earned in mileage $205,582.68. The entire expense to be deducted for repairs and administration was $34,050.48, leaving a net revenue of $171,532.20, which was an excess of $15,032 above the whole cost of the cars. The company was therefore earning over 50 per cent on its investment, and the cars had paid for themselves in less than two years. This, however, was an extreme case, because extraordinary arrangements had been made with one particular railroad which handled the cars on such fast schedules that their daily mileage was much greater than that of ordinary stock cars.[1]

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[1] *Int. Com. Rep.*, 1889, p. 15.

In 1891 Judge Schoonmaker, formerly a member of the Interstate Commerce Commission, read a paper before the third annual Convention of Railroad Commissioners, in which he discussed discriminations from the use of private cars. He said:

> The revenues of carriers are seriously impaired by the amount these mileage payments add to the expenses of operation, and it is not uncommon when rates are abnormally low, that, after deduction of these payments, not even the cost of carriage is left to the road, so that the traffic thus carried is sometimes detrimental to the carrier.

The convention appointed a committee to make a further study of the question and in its report for 1892 it submitted numerous figures to prove that the earnings were excessive. This committee estimated the number of private cars at the time as 70,000. At the average movement of railroad cars, 24 miles per day, these cars would have received $4,600,000 in mileage. But it went on to say that the movement of private cars was at least twice that of ordinary freight cars and in some cases four times as great, and that more than the regular three-quarters of a cent mileage was paid in some parts of the country.[1] To make a rough calculation from these figures, we may estimate the average value of a car at $800, the daily mileage at three times the ordinary freight-car rate, or 75 miles, and the mileage charge uniformly at three-quarters of a cent. This perhaps overstates the mileage but understates correspondingly the mileage charges. These assumptions would give the following results:

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[1] Jacob Shamberg *vs.* Delaware, Lackawanna and Western Railroad, and the New York, Chicago and St. Louis Railroad, *Int. Com. Rep.*, 1891, p. 40. *Cf.* also 4 *I. C. C. Rep.*, p. 630 *et seq.*

Value of 70,000 cars	$56,000,000.
Annual mileage rental received	$13,800,000.
Percentage of mileage rental to total value	24.6 per cent.

The committee went on to recommend that only a reasonable mileage should be paid on loaded cars, and that no rental should be allowed on empty cars.

In its annual report for 1893,[2] the Commission, in speaking of the increasing use of private cars said:

> It is apparent that the use and method of payment constitute a serious burden upon commerce, and such payment now absorbs too large a portion of the earnings of carriers, and it is apprehended unless measurably abandoned or new methods of payment adopted, it may in the future to a still greater extent absorb earnings.

It was also stated that although the private cars then in use constituted only six and one-half per cent of the total car equipment, they made 20 per cent of the total car mileage of the country. In 1892 the Commission addressed to the railroads of the country a set of questions concerning the use of private cars. One question was,[3] "Is the payment of car mileage to shippers for the use of private cars in your opinion a practice working injury to the railroads by forcing them to pay mileage on cars, while their own equipment suitable for the purpose stands idle?" Of 95 roads that answered, about one-third claimed that no injury resulted, and the other two-thirds asserted that such practice worked serious injury to the railroad companies.

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[1] *Proceedings of the 4th National Convention of Railroad Commissioners*, 1892, p. 59.

[2] Page 60.

[3] *Int. Com. Rep.*, 1893, p. 65.

In order to make an exact computation of the earnings of private cars, it is necessary to have the following data:

1. The mileage rental.
2. The average daily mileage of cars.
3. Cost of cars.
4. Expenses.

The most careful estimates that have been made on this subject are those of Mr. J. W. Midgley in the *Railway Age*, and that contained in the report of the Commissioner of Corporations on the beef industry. It is necessary to make separate estimates for the different kinds of special-equipment cars, on account of their different costs, mileage rentals, and average daily mileages. It is also necessary to distinguish between different classes of refrigerator cars because beef cars travel faster, and consequently earn more, than fruit, dairy, or beer cars. Discussion will be limited to the three principal kinds of private cars, refrigerator, stock, and tank, and these will be taken up in order, beginning with the first named.

REFRIGERATOR CARS

Mileage rental. It has been shown that the mileage rental on refrigerator cars east of Chicago and the Mississippi River is almost uniformly three-quarters of a cent, and that between Chicago and the Missouri River, and to a certain extent west of the Missouri, the prevailing rate is one cent a mile, loaded or empty. It is impossible to determine just what proportion of the total mileage is subject to the three-quarters of a cent rate. The *Beef Trust Report* assumes that it applies to 85 per cent, inasmuch as the President of the Armour Car Lines had stated that the one-cent rate applied to about 10 or 15 per cent of the total mileage of beef cars. Others have estimated that the one-cent rate applies to a larger proportion. Assuming that the proportions are 85 per cent and 15 per cent, the average mileage rate of refrigerator cars would be .7875 cents.[1] Mr. Midgley places it at .8333 cents in his computations.[2]

Daily mileage of refrigerator cars. Mr. Midgley testified before the Interstate Commerce Commission that during 1901, the last year that mileage statistics were kept by the railroads, prior to the change to the *per diem* basis, the average mileage of dressed-beef cars on 23 leading railroads was 135 miles per day, and on all refrigerators of private ownership, 108 miles per day.[3] It appears, however, that these calculations did not take into account the fact that there should be deducted the time that a car is out of service. Dressed-beef cars are out of service not more than thirty days in a year, while fruit cars are out of service perhaps three months.[4] After taking this into account, the *Beef Industry Report* assumes that 90 to 100 miles a day would not be excessive for beef cars, and that sufficient allowance for the slow movement of empties and detention at terminals is made in this estimate. The reports of certain packing companies to various states showing their daily mileages, are of little value because they have generally applied only to a limited section. For instance, packers claimed daily mileages of from 350 to 430 miles for their refrigerator cars in the state of Michigan.[1] This is due, of course, to the fact that the traffic in that state is almost entirely through-traffic on fast schedules. There is almost no evidence to show that the average mileage of cars in the dressed-beef trade is below 100 miles a day, while there have been numerous statements which would seem to make it fair to place the figure higher. Mr. Midgley assumed in his articles that the average mileage of *all* refrigerators was 100 miles a day, but this is undoubtedly too high, because fruit cars have a much lower average, probably not more than 60 or 70 miles. The Santa Fe reckons that its fruit cars make about 66 miles a day throughout the year.[2] Dairy cars average about 65 to 75 miles a day.

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[1] *Report of the Commissioner of Corporations on the Beef Industry*, p. 273.

[2] *Railway Age*, vol. 36, p. 677.

[3] I. C. C., Oct., 1904, *Hearings*, p. 8.

[4] Testimony of G. B. Robbins before House *Com. on Int. Com.*, Feb. 13, 1905.

It is evident from these various data that no exact computation can be made. By arbitrarily assuming mileage averages, however, which are obviously low enough according to the evidence at hand, certain interesting results may be brought out.

Cost of refrigerator cars. A first-class refrigerator car costs today about $1,100. The Santa Fe Refrigerator Despatch was paying $1,160 for cars in 1906.[3] In the same year the American Refrigerator Transit Company paid $1,100 apiece[4] for 1,000 cars. Armour and

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[1] *Beef Industry Report*, p. 276.

[2] Testimony of J. S. Leeds before Interstate Commerce Commission, Nov. 1, 1905.

[3] Information from personal interview with president of line.

[4] Elkins Com. *Hearings*, vol. iii, p. 2283.

Company claim that their fruit cars cost about $1,100.[1] During the nineties they cost sometimes less than $1,000. Materials were cheaper then, and 36-foot instead of 40-foot cars were generally built. For cars in the packing-house service, the *Beef Industry Report* assumes $1,000 as a fair average cost.

Expenses of refrigerator-car lines. The expenses may be classified as follows: first, repairs; second, operating expenses; third, taxes, insurance, *etc.;* and fourth, depreciation. No deduction for interest charges will be made in the following calculations.

Expenditures for repairs to refrigerator cars vary with different companies, some paying enough to include a part of the allowance for depreciation. Damages due to accidents are repaired by the railroads on which the accidents happen. The average cost for repairs would seem to be about $40 a year, and this is the allowance that the Bureau of Corporations adopts. Operating expenses amount to very little with most refrigerator-car companies, because only a small administrative service is necessary to supervise and record the movement of cars. In refrigeration for fruit traffic this item is much larger, as has been shown before. The *Beef Trust Report* allows $15 a car per year for operating expenses, and this would seem to be liberal.

Taxes are paid in a number of states, but their amount is insignificant in the aggregate. In 1905 Armour and Company paid taxes of $554.75 in Minnesota, and $1,321 in Iowa. Swift and Company paid $353.56 and $685 in these two states respectively. Eastern states have not developed systems of taxation on private cars to the extent that western states have. Taxes amount to so little, therefore, that they may be disregarded altogether. Insurance is even less important.

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[1] Testimony of G. B. Robbins before House Committee, Feb. 13, 1905.

Depreciation, however, is an important element of expense. According to a rule of the Master Car Builders' Association depreciation on refrigerator cars is generally figured at six per cent.[1] Mr. Robbins testified that the Armour Car Lines charge off 12 per cent for depreciation,[2] but this is unnecessarily high. Mr. Midgley reckoned it at eight per cent, and this is probably fair, because refrigerator cars do not last as long as other cars. The Commissioner of Corporations uses six per cent, according to the Master Car Builders' rules.

The estimate of the receipts, expenses and profits of private refrigerator cars in the packing-house trade, as contained in the *Beef Industry Report*,[3] follows:

Assumed Cost of Car: $1000.	Average Daily Mileage.				
	50.	75.	90.	100.	125.
Average mileage rental	$0.007875	$0.007875	$0.007875	$0.007875	$0.007875
Average daily receipts	0.3937	0.5906	0.7087	0.7875	0.9843
Average yearly receipts	143.70	215.57	258.68	287.44	359.27
Expenses.					
Average yearly repairs	40.00	40.00	40.00	40.00	40.00
Average yearly operation expense	15.00	15.00	15.00	15.00	15.00
Average yearly depreciation	60.00	60.00	60.00	60.00	60.00
Total charges	$115.00	$115.00	$115.00	$115.00	$115.00
Balance, profit	28.70	100.57	143.68	172.44	244.27
Equals on investment, about	2.8%	10%	14.3%	17.25%	24.4%

From this table it will be seen that cars in the dressed-beef traffic earn about 14 per cent over and above expenses when the daily mileage is 90, 17.25 per cent at 100 miles a day, and 24.4 per cent at 125 miles a day.

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[1] *Beef Industry Report*, p. 280.

[2] Before House Committee, Feb. 13, 1905.

[3] Page 282.

Since 100 miles a day is a conservative estimate, it seems safe to say that the cars of the packers earn over 17 per cent on their cost from mileage alone. There is no profit from refrigeration in the meat traffic. The packers are both shippers and car owners, and they either furnish their own ice, or buy it of the railroads on a tonnage basis. Cost of ice should not be included among the expenses above, because the packers would have to buy ice just the same whether they used their own cars or not. A further proof that 17 per cent is a conservative estimate of earnings of dressed-beef cars is found in the statement of a certain packer to the Bureau of Corporations that the net profit from the operation of his cars had been about 20 per cent on the investment.[1] Also, the Cudahy Packing Company of Chicago furnished the Bureau with a statement of the operations of its car lines for 1902, 1903 and 1904. Figures selected from this statement are quoted, as they constitute perhaps the most definite statement of earnings that it is possible to obtain:

STATEMENT OF THE CUDAHY PACKING COMPANY.[2]

	Year Ending October 30.		
	1902.	1903.	1904.
Total mileage	31,719,547	29,646,971	31,230,366
Number of cars in service	815	822	845
Total mileage payments	$285,490.93	$274,444.24	$321,882.42
Gross operating expenses	115,656.34	121,973.89	145,879.00
Profits	$169,834.59	$152,470.35	$176,003.42
Per cent of profits on original investment	22%	20%	17.7%

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[1] *Beef Industry Report*, p. 283.

[2] *Ibid.* (These figures include 34 tank cars.)

From this statement it will be seen that the Cudahy Company received profits of 22 per cent, 20 per cent, and 17.7 per cent for the years 1902, 1903, and 1904 respectively. The cost of the cars was reckoned by the company at $940 each. A study of the gross operating expenses reveals the fact that between $140 and $150 per car was allowed, whereas the Bureau of Corporations estimated the annual expenses at only $115. As some of the equipment of the Cudahy Company was old, the Bureau concludes that its estimated expense "is apparently too high a figure to be used as a fair average for refrigerator cars generally." Estimating from the above figures, it will be seen that the average mileage earnings per car were about .9 cents, showing that the bulk of the traffic must have been west of Chicago where the one-cent rate applies. It may also be figured that the average daily run per car was 115 miles, so that on the whole the discrepancies between this statement and the estimate of the Bureau approximately offset each other and lead to the conclusion that the Bureau's estimate is a conservative one.

Mr. Midgley in his computations, "to be entirely safe and more than fair," allows a daily average of 135 miles for the cars of the principal packers. He then deducts 20 per cent from the total number of cars to allow for time out of service, and uses a year of 350 days. Reckoning depreciation at 10 per cent, repairs at $50 per car, and operating expenses at five per cent of the income, he finds that these cars earn about 21 per cent on a value of $800 per car. His allowance for time out of service is at least twice as large as necessary. Mr. Midgley also says that he has been informed that the dividends paid by one large packing company on the stock representing its refrigerator equipment had been

25 per cent per annum, by another company 22 per cent, and that the head of a third packing company had made the statement that of all its ramified interests no department yielded such profitable returns as its refrigerator-car line.[1] All this testimony taken together establishes pretty conclusively the fact that refrigerator cars used in the shipment of dressed beef and provisions earn from 17 to 20 per cent on their value.

Refrigerator cars in the fruit and vegetable traffic show no such large earnings from mileage as do beef cars. They are out of service a good deal of the time between shipping seasons, and do not run on such fast schedules. Their average mileage for the year is probably not over 65 or 70 a day, notwithstanding various estimates which have placed the figures much higher. It was testified before the Interstate Commerce Commission in 1900 that the old Goodell Refrigerator Line had earned in the California fruit traffic $111,000 in mileage in five years on 100 cars, which cost $1,054 apiece.[2] This would be $222 per car per year, which would indicate a daily average of about 80 miles. Deducting $115 a car for expenses, the profit was about 10 per cent of the cost. It was also claimed, however, that the cost of refrigeration was never more than $55 a trip, and that the icing charge had been about $90. If this was true, it is evident that it would have required only one or two trips a year under refrigeration to augment considerably the annual profit per car.

According to statistics procured by the Bureau of Corporations for the year 1904, the Continental Fruit Express, an Armour corporation, had 1,645 cars, and the total mileage was 36,745,135,[1] which meant a daily average of 61.2 miles. At three-fourths of a cent a mile, the gross receipts per car were $167.53. Deducting $115 for expenses, the profit was $52.53 per car per year, which just about covered interest at five per cent. It is not worth while to attempt to estimate the profits from refrigeration, but it has been shown that in a great many cases where Armour operates under an exclusive contract these profits are unduly high, so that, taken together with receipts from mileage, they evidently constitute a very handsome return. The profits from refrigeration tend to make up for the slower movement of fruit cars and place them more nearly on the earning basis of meat cars.

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[1] *Railway Age*, vol. 35. p. 89.

[2] Brief of attorneys for Continental Fruit Express in Orange Rate Cases.

In this connection the Santa Fe Refrigerator Despatch furnishes an instructive object lesson. This company leases its equipment from the Santa Fe railroad, paying five per cent on the value of the cars, and the railroad pays the subsidiary concern no mileage rental. When traveling on railroads other than the Santa Fe, these cars earn three-fourths of a cent mileage, and it has been testified that about 65 per cent of the total movement is over Santa Fe rails, leaving only 35 per cent that earns mileage.[2] The car line performs the icing and receives all charges levied for this service. It also pays for all repairs, expenses of operation, administration, *etc.* out of its earnings. Furthermore, it has been testified that the revenue of the company has been sufficient to meet all expenses. In other words, it has earned enough from refrigeration charges and from mileage on only 35 per cent of its operations to pay all expenses of refrigeration, maintenance and supervision, and also five per cent on the value of the cars. This suggests the probable earning capacity of fruit cars that receive a mileage rental on their total wheelage. Suppose that these Santa Fe cars received three-fourths of a cent mileage on the other 65 per cent of their movement. The average daily mileage has been stated as 66 per car. On January 1, 1906, the company owned a little over 6,000 cars. 65 per cent of this is 3,900 cars, which would earn in one year $704,-632.50. Since all expenses of the company are met from what it actually receives, the above amount would be net profit. Calling the value of the equipment $6,000,000 this net profit would equal 11.7 per cent on the investment, or, if interest be not deducted, 16.7 per cent on the investment. Armour fruit cars earn mileage everywhere they travel. Profits from refrigeration are not so great in California business, which constitutes the bulk of the Santa Fe traffic, as in other sections under exclusive contracts. Although this reasoning is not offered as absolute proof, it seems to lead inevitably to the conclusion that the earnings of refrigerator cars in the fruit traffic from mileage rental and refrigeration service together equal at least 12 or 15 per cent on the investment.

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[1] The Bureau of Corporations procured these figures from certain state reports, but intimates that their exactness is doubtful. *Cf. Beef Industry Report*, pp. 270 and 282.

[2] I. C. C., October, 1904. *Hearings*, p. 145 *et seq.*

Refrigerator cars in the dairy and beer traffic can not augment their profits from icing charges. For the dairy traffic many of the important railroads own sufficient equipment, and there are comparatively few private companies engaged in this business. As already stated, these companies often receive a commission on the freight rate. Sometimes this commission is allowed for the purpose of defraying the expense of icing when that service is undertaken by the car line, as in the case of Armour cars in the dairy traffic, but a commission of 12½ per cent, which is the usual rate, ordinarily leaves a small surplus of profit above the cost of the ice. The railroads usually attend to the icing and charge it up to the car lines at $2.50 a ton in trunk-line territory. The initial icing is often charged to the shipper. Sometimes the railroad assumes the whole or a large part of the expense of refrigeration. The cars earn uniformly three-quarters of a cent mileage, loaded or empty.

The Dairy Refrigerator Despatch, above referred to, receives a commission of 12½ per cent from the Lackawanna, and the car company stands 12½ per cent of the cost of icing, the railroad paying the remainder.[1] The Missouri River Despatch, which receives 12½ per cent commission on the freight rate from the Erie pays for all ice used. The manager of this company testified before the Interstate Commerce Commission that on a trip from Chicago to New York, the 12½ per cent commission amounted to about $16, and the mileage to $15; also that one car made the round trip in about a month, and that the cars cost $910 each.[2] Allowing one month out for repairs and delays, and $12 per trip for cost of ice, (the estimate of the witness), these figures would mean a gross revenue of about $209 per car. Deduct $120 for repairs, depreciation, operating expenses, *etc.*, and the net revenue is $89 per year, or a fraction under 10 per cent of the cost. This estimate is very rough, but fairly conservative. The Chicago, New York, and Boston Refrigerator Company, operating about 700 cars, receives a commission of 12½ per cent from the Grand Trunk and Central Vermont Railroads, and 10 per cent from the West Shore. It was testified by an officer of the company that the commissions just about cover the expenses of refrigeration, so that the earnings of the company are derived from mileage alone.[1] The companies above mentioned, although on intimate relations with certain railroads, are not owned by them. Neither are they identified with shippers. The earnings are not excessive, and there are no serious complaints against them.

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[1] I. C. C., October, 1904, *Hearings*, p. 156.

[2] *Ibid.*, p. 94 *et seq.*

Refrigerator cars operated by the brewers generally earn nothing but mileage, and revenue from this source is not usually excessive. Certain railroads pay commissions on the freight rate in order to attract traffic to their lines. One glaring instance of this has been the case of the Milwaukee Refrigerator Transit Company, which has been referred to above, and which will be discussed in the next chapter. Suffice it to say in this place that the earnings of this company were fairly large. Many brewing companies hire cars for their own use at a monthly rental. Armour and Company lease some of their older cars in this way for $17 or $18 a month.[2] As these cars are practically unfit for the fruit traffic, and as they have undoubtedly much more than paid for themselves during the years they have been in service, the profit to Armour and Company is unquestionably large. The fact that the breweries find it profitable to hire cars at these rates would seem to indicate that the earnings from mileage are sufficient to cover expenses, and that if they could afford to put sufficient capital into equipment, they could make a fair net profit.

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[1] I. C. C., October 1904, *Hearings*, p. 153 *et seq*

[2] *Ibid.*, p. 56.

STOCK CARS

Stock cars earn uniformly six-tenths of a cent a mile, loaded or empty. Their daily mileage has been variously estimated. Figures furnished by four railroads in 1892 indicated an average of about 80 miles a day.[1] In 1904 Mr. Midgley placed it at 72½ a day.[2] He also said that west of the Mississippi they traveled much slower than in the East, and that their mileage was probably not more than 50 a day.[3] 60 miles a day is perhaps a fair estimate for the whole country. Stock cars are cheaper than refrigerator cars. The Interstate Commerce Commission stated in 1889 that they cost $650. In 1904 it was testified that the patent cars of one of the largest companies cost about $700.[4] Another witness said that they cost from $600 to $750.[5]

When the mileage rental was three-fourths of a cent, and before the livestock traffic to the Atlantic seaboard had given way to dressed-beef traffic, the earnings of these cars were very large. Since the reduction to six mills, however, the earnings have fallen off, and probably cover but a little more than a fair rate of interest on the investment. Mr. Midgley placed the gross earnings from mileage at $106.82 a year. After deductions for repairs, depreciation, *etc.*, only a small balance is left. The head of one of the oldest cattle-car companies said that the reduction to six mills had driven some companies out of business, and that he considered it hardly a fair compensation.[6] The general manager of Street's Western Stable

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[1] *Proceedings of the Annual Convention of Railroad Commissioners*, 1892, p. 60.

[2] I. C. C., October, 1904, *Hearings*. p. 8.

[3] *Railway Age*, vol. 36, p. 471.

[4] I. C. C., October, 1904, *Hearings*, p. 119.

[5] *Ibid.*, p. 111.

[6] Mr. Mather of the Mather Stock Car Company. I. C. C., October, 1904, *Hearings*, p. 113.

Car Line stated that his company was making but a trifle over five per cent interest on its capital.[1] On the whole, then, it is safe to say that private stock cars are not making excessive earnings, and this view is borne out by the Interstate Commerce Commission in its annual report for 1904:[2]

> We have never received any complaints from shippers of livestock in reference to the use of private stock cars, and we are inclined to think that there is not today any great injustice to the shipping public growing out of the use of these cars, nor do we think that the furnishing of such cars at the present rate is attended with undue profit to the companies which supply them.

TANK CARS

The rental paid by railroads for the use of tank cars is three-fourths of a cent a mile in all parts of the country. Mr. Midgley stated before the Interstate Commerce Commission in 1904 that they averaged about 66 miles per day.[3] In his articles in the *Railway Age*, he stated that during parts of the year 1902 they averaged only a little over 32 miles a day east of the Mississippi, but that in the West they had a daily mileage of about 95.[4] As the bulk of the traffic is in the East, these figures indicate a much lower daily mileage than the 66 miles a day reported to the Commission. From figures furnished to the Bureau of Corporations, the 34 tank cars of the Cudahy Packing Company averaged about 34½ miles a day for the year 1904.[5] The cost of oil cars was placed by the Commission in 1889 at $610. Since that time, however, larger and stronger cars with steel under-frames have been built, and it was testified in 1894 that the best cars cost $900.

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[1] I. C. C., October, 1904, *Hearings*, p. 121.

[2] Page 13.

[3] I. C. C., October, 1904, *Hearings*, p. 8.

[4] Vol. 36, p. 470.

[5] *Beef Industry Report*, p. 283.

Although there are a number of companies which own a few tank cars, the Union Tank Line, a subsidiary concern of the Standard Oil Company, is by far the most important, and is, in fact, next to the Armour Car Lines, the largest private-car line in existence. During the agitation among railroad men in 1894 to reduce the mileage rental on oil-tank cars, the Union Tank Line claimed that:

> For the years 1891, 1892, 1893, the company earned upon its investment an average of 5.15 per cent without charging off anything for depreciation. Had the usual depreciation charge of six per cent been made, the Tank Line Company would have received no net return on all its investment. If the mileage is reduced to one-half cent per mile, it will deprive the Tank Line Company of 33⅓ per cent of its gross revenue, which would compel the company to maintain its equipment at an absolute loss and be a partial confiscation of a large property which has been created with at least the acquiescence of the carriers.[1]

In one of his articles, Mr. Midgley directly attacked the foregoing statement as incorrect. Without going into detail, especially as the figures he used in his computations were more or less arbitrarily assumed, he showed that the income of the tank line, as announced by its officials, would mean a daily average of only a little over 24 miles a day. He then said:

> That is a showing so absurd as to have been incredible. Tank cars never did make such an insignificant record; in-

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[1] *Railway Age*, vol. 34, p. 402.

deed, we know positively that the daily average mileage on a number of representative railroads in different sections of the country for the year 1901 exceeded 66 miles per day.[1]

Mr. Midgley's estimate of the gross earnings of tank cars, on the basis of 66 miles per day, but making a liberal allowance for time out of service, is $121.58 per year.[2] After charges for repairs, depreciation, operating expenses, *etc.*, are deducted, this evidently leaves but a small profit. It is a significant fact that Mr. Midgley's allowance for time out of service would reduce the average daily mileage for the year from 66 to 43.7. This is probably a fair estimate, although it is an open question whether they travel more than, or even as much as 40 miles a day throughout the year.

The vice-president of the Union Tank Line testified to the Interstate Commerce Commission that in 1903 his company had operated at a loss of 3.8 per cent of the money invested, and that during the first six months of 1904 it had operated at a loss of 1.7 per cent on an investment of almost $8,000,000. Furthermore, he asserted that nothing had been charged off for depreciation.[3] Since the company at that time had 8,140 cars in service, it is reasonable to question whether the capitalization was not placed too high. Nevertheless, if depreciation at six per cent had been allowed, earnings would have shown a loss even if computed on a much smaller capitalization. At an average of 40 miles a day, a tank car would earn $109.50 a year. Deducting allowances for repairs at $25 per car, depreciation at six per cent, or $48 per car, there would be left a balance of $26.50, or about 3⅓ per cent on an assumed value of $800 a car. Even if the daily mileage were greater, no large earnings would be shown, and there is good reason to believe that the contention of the car line that its business is not profitable is sound.

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[1] *Railway Age*, vol. 34, p. 402.

[2] *Ibid.*, vol. 35, p. 89.

[3] I. C. C., October, 1904, *Hearings*, p. 221.

Conclusions as to earnings. Private cars may be divided into two general classes according to ownership: first, those that are owned by shippers, and second, those that are owned by companies who are not also shippers. In the first class fall practically all refrigerator cars used in the dressed-beef traffic, and all tank cars; in the second class fall refrigerator cars used in the fruit traffic and almost all stock cars. It is evident that if the earnings are excessive for cars in the first class, those shippers owning cars receive a tremendous advantage over their competitors who do not own cars.

It has been shown that in the case of stock cars and tank cars the earnings are not excessive at present, whatever they may have been fifteen years ago. In the case of refrigerator cars, however, profits are unjustly high. This is especially true of dressed-beef cars, and in this case, the owners are also the shippers. The ethical and economic aspects of this arrangement will not be discussed in this place. It is sufficient to say that although the economies thus attained by the packers may have a slightly beneficial effect on the price of meat (at least theoretically), yet the payment of excessive mileage constitutes a serious burden on the railroads—a burden from which they should be freed. The Bureau of Corporations, in its *Report on the Beef Industry* in 1905 said:

> Whether such a rate of profit in ordinary business can be considered unreasonable is open to debate; but there can be little room for discussion when this profit is derived wholly

from a payment allowed by the common carriers of the country.[1]

The large trunk lines could easily afford to build their own equipment, and would find a great saving in doing so. They are powerless to attempt it, however, because all the packers have their own equipment, and no railroad could get any meat traffic if it refused to handle the packers' cars. The only avenue of escape would seem to be through a reduction of the mileage rental, and yet, judging from past experience, it is doubtful whether the railroads could bring this about. In this particular class of traffic, however, the rates on dressed-beef are so low, and the mileage payments are so heavy, that Mr. Midgley considers the carriage of these products as unremunerative to the railroads, and thinks that they could well afford to make a stand against the packers, even if it resulted in a temporary loss of traffic. It seems as though they might refuse to pay mileage on the return of empty cars, but even this would require the coöperation of all the railroads, and it is doubtful if it could be effected. The whole business offers a glaring, and almost an absurd, example of the power exercised by the large packers over the railroads.

Private refrigerator cars in the fruit traffic fall in the second class of private cars and are at present owned to a very slight extent by fruit shippers. The Continental Fruit Express, before its absorption by the Armour Company, was owned by the Earle Fruit Company, which was an extensive dealer in California fruits, and the complaints of other fruit men against the advantage that this company had were very bitter. Until 1904, Armour and Company dealt to a certain extent in fruit and produce, but owing to the agitation against private cars at that time, they decided to discontinue the practice. The operation of private fruit cars is not so burdensome on the railroads, because they are able to maintain high freight rates on fruit, but they do place a burden on the growers. For instance, it has been said that dressed beef was originally classified with green fruits, but that the rates on meat have been continually hammered down so that they are much lower than the fruit rates. A statement on the relative fruit and dressed-beef rates from various points to Duluth, Minn., submitted to the Senate Committee in 1905,[1] shows that the rate on fruit per hundred pounds is from 28 to 54 per cent higher than the rate on beef. Likewise, the average rate on twelve different commodities from California to eastern points, including canned goods, wheat, wines, iron ore, vegetables, sugar and others, has been stated as 77½ cents per hundredweight, while the rate on fruit is $1.25.[2] Although it is reasonable for the railroads to charge a higher rate for this most perishable of all commodities, yet the absorption of large earnings by private companies undoubtedly tends to maintain the fruit rate at a disproportionately high level, thus placing a burden on fruit growers, and adversely affecting the prices to consumers.

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[1] Page 285.

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[1] Elkins Com. *Hearings*, vol. i, p. 369.

[2] Brief of J. H. Call, attorney for the Interstate Commerce Commission in the Consolidated Forwarding Company *vs.* Southern Pacific Company *et al.*

UNIVERSITY

CHAPTER VII

Discriminations and Rebates

One of the principal charges against private cars is that they are used as a means of granting discriminatory rates and rebates. During the nineties this was perhaps the complaint most commonly heard, and it repeatedly received the attention of the Interstate Commerce Commission. It is easy to understand how privately owned cars, particularly when owned by shippers, may be used as a device to cover up discriminations and hide them from the eye of the public. During the attempts to put a stop to discriminations under the law, and especially before the passage of the Elkins Act, it was only natural that private cars should be looked on with suspicion. And, undoubtedly, this suspicion was not ill-founded, because, although many accusations based only on rumor and imagination were made, some reprehensible practices were discovered, and others have been confessed to since their cessation.

In the Lackawanna Livestock Express case, cited above,[1] a railroad made such extraordinary arrangements with a stock-car line, the owners of which were also shippers of cattle, that the mileage earnings were sufficient to pay for the cars in two years. In considering this case, the Commission held that the above practice constituted an unjust discrimination against all other shippers, and said further, that when such arrangements for the use of the cars of private shippers result in undue and exclusive advantages to certain parties, "it is a matter affecting the public interest, and undoubtedly comes within the purview of the law forbidding unjust discriminations and undue preferences."[1] The Commission also said: "It is believed that there are other methods by which the use of private cars may be, and has been, made the means of conferring undue advantage on certain shippers." One more quotation from the report of 1891 further illustrates the opinion of the Commission that the payment of excessive mileage constitutes a discrimination—an opinion that has been reiterated time and again since that year:

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[1] *Cf. supra*, p. 137.

> Turning to the question of compensation made by the carriers to the shipper for the use of the latter's car, it is plain that if this compensation is more than a fair return on the cost of the car, treating that as an investment made by the shipper, this practically amounts to paying the latter a bonus for his business, a plain and flagrant discrimination against other shippers.[2]

In the oil cases that the Interstate Commerce Commission investigated about 1890, it was found that the rate on oil in tank cars was lower than the rate on oil in barrels, inasmuch as the tank was considered a part of the car, its weight not being charged for, whereas barrels were considered as packages for carrying oil, with their weight included in the freight rate. It was urged that it was cheaper for the railroad to handle oil in tanks, and also that any shipper was at liberty to provide tanks and thus derive the same advantages. The Commissioners held, however, that it was properly the business of the railroad to supply its patrons with suitable vehicles for transportation, and to offer the use of them to everybody impartially, and that failure on the part of the railroad to do this should not result in a discrimination against those patrons who were obliged to depend on the facilities provided by the road. The Commission accordingly held that the carriers' practice of charging for the weight of the barrels, in case of oil shipments in carriers' cars, while not charging for the weight of the tank in which the oil is transported in shippers' cars is unjust discrimination, and caused the rate on oil in tanks to be raised, and on that in barrels to be reduced. The Commission appreciated the nice economic question involved, and added that any other criterion of right conduct where the tank and truck both belong to the private shipper, "is manifestly founded on technical considerations, and not on substantial justice."[1]

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[1] *Int. Com. Rep.*, 1891, p. 40.

[2] *Ibid.*, p. 39.

The idea that the payment of excessive mileage constitutes a discrimination in favor of the shipper owning cars was also proclaimed by Judge Schoonmaker before the Annual Convention of Railroad Commissioners in 1891. He said, in part:

> In the case of shippers' cars there is no reciprocity. The money is paid directly to the shipper, and to the extent that it exceeds current interest on the cost of the car and a fair allowance for depreciation, it is a direct loss to the carrier and a discrimination in favor of the shipper.

Mr. Midgley also holds that it is a discrimination, and claims that the payment of mileage on empty cars is preposterous, and that it can be construed in no other way than a concession to shippers for their traffic—an abuse which clearly comes under the Elkins Law of 1903.[1]

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[1] *Int. Com. Rep.*, 1891, pp. 36–38.

It has been claimed that other forms of discrimination have resulted from the use of shippers' cars. For instance, it was testified before the Industrial Commission that shippers often load their cars with merchandise of various classifications, and that after being sealed they are usually subjected to the tariff rate applicable only to the lowest class of freight contained in the car.[2] The Interstate Commerce Commission in its investigation of 1904 was unable, through questions to sundry witnesses, to unearth any such manipulations of rates, although they have undoubtedly been practiced to a certain extent. It has also been alleged that since the relations of the railroads with the private companies have always been strictly private, it has been easily possible to manipulate the mileage figures in such a way as to effect the payment of a rebate. These devices are possible ways of evading the law, but, although they have probably been used in times past, it is doubtful if they have persisted in the face of the more radical legislation and its more vigorous enforcement of the past five years.

What has been said above refers almost exclusively to the practices of owners of cars who are also shippers. In the case of private cars whose owners are not also shippers, such as the fruit refrigerator cars, and livestock cars, rebates and discriminations have until recently been very much in evidence. Stock-car companies have often paid rebates from their mileage earnings in order to induce shippers to use their cars. Mr. Midgley has stated that he has known of cases where this was done, and that in one instance a certain line turned over half of its earnings, which were very large, to the shipper who was a packer.[1] During the Interstate Commerce Commission's investigation in 1904, the question was asked of a representative of the Street's Western Stable Car Line, whether his company was in the habit of paying back anything to shippers. On advice of counsel, witness refused to answer[2] on the ground that his company was not a common carrier and was beyond the jurisdiction of the Commission. The Commission appealed to the court for an order to compel the witness to answer. Judge Landis handed down the decision on January 27, 1906. The Court assumed that if the answer had been given at the hearing, it would have revealed the payment of money by the Street's Company to shippers, and held that in such a case the private-car company was within the provisions of the Elkins Act, and that the payment of such money would have constituted a rebate, inasmuch as the statute is supposed to apply to the net cost of transportation to the shipper.[3] This interesting case will be referred to again.

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[1] *Railway Age*, vol. 36, p. 44.

[2] *Report of the Industrial Commission*, vol. iv, p. 364.

During the nineties, refrigerator-car lines in the fruit traffic were frequently guilty of paying rebates to fruit shippers. In the era of competition before the adoption of exclusive contracts, such rebates were paid in Georgia, and especially in California, where they caused much demoralization. The facts in connection with these California rebates were brought to light in the Interstate Commerce Commission hearings in 1900, and it was claimed by car-line officials that the policy of the car line in refusing to grant any more rebates after January first, 1900, had been the inducement which led to the institution of proceedings by the complainants who now had to pay the full rate and icing charge. At all events, complainants testified that until 1900 they had been receiving rebates regularly, and confessed that the return to the full charge had precipitated their complaint.[1]

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[1] I. C. C., October, 1904, *Hearings*, p. 11.

[2] *Ibid.*, p. 116.

[3] 145 *Fed. Rep.*, 235.

The advent of exclusive contracts was really the direct cause of the amelioration of conditions in this respect, and it is safe to say that rebates are not now paid in the fruit traffic. In 1904 it was found that Armour and Company and the Santa Fe were not adhering accurately to their published refrigeration charges for California deciduous fruits, and that they were refunding $25 on each car shipped to Chicago, and $35 per car to points east of Chicago. This was explained by Mr. Robbins of the Armour Line by saying that this allowance was made on certain cars that shippers did not wish to have iced until they had crossed the mountains on their way east, and that all shippers were treated alike in this respect.[2] It is interesting to note that provision was made for this arrangement in the published Armour tariff for the following year. The practice seems to be legitimate, at least as it exists at present, and there are no longer any complaints.

One other possible source of illegitimate practice is to be found in commissions on the freight rate, paid by railroads to private-car companies. The contracts by which such lines as the Missouri River Despatch and New York Despatch receive such commissions on poultry and dairy products, over and above the mileage payment, have been described. Clearly, if these companies are also financially interested in the products transported in their cars, this payment would be in the nature of a rebate. Or, if they turned over any part of their earnings as inducements to raisers of dairy products, this would obviously be a rebate. Officials of the New York Despatch, which has a contract with the Grand Trunk, testified that at one time they did make payments to shippers, and that the money for so doing had been provided by the railroad. They claimed, however, that they had ceased doing this, because the Grand Trunk had refused to permit the practice to continue.[1] Investigations have succeeded in disclosing no cases where these commission-receiving dairy lines have been owners of the commodities shipped,[2] and there seems to be no objection to their being paid commissions, especially as these funds are used to some extent to defray the cost of icing. One very interesting case in this connection, however, deserves a few words.

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[1] Brief of attorney for Continental Fruit Express in Southern California Fruit Exchange *vs*. Southern Pacific *et al.*

[2] Elkins Com. *Hearings*, vol. iii, p. 2368.

The Milwaukee Refrigerator Transit Company is a private-car line operating about 540 cars and engaged principally in the carriage of beer. During the private-car investigation in 1904, the Interstate Commerce Commission brought to light the following facts: that the car line was a Wisconsin corporation, the stock of which was owned by the Pabst Brewing Company people of Milwaukee; that the car company furnished cars to the brewing company for the transportation of its products; and that the car company had contracts with various railroads which provided not only for the payment of the regular mileage rental, but also for the granting of a commission of 12½ per cent in some cases, and of 10 per cent in others, on the net amount received by the railroad companies as freight charges.[1]

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[1] I. C. C., October, 1904, *Hearings*, p. 155.

[2] An exception to this is where Armour and Company deal in poultry and dairy products and receive commissions of 12½ per cent, but the car line performs all the icing and probably makes very little, if any, profit from the transaction.

In 1905 a petition under the Elkins Act was filed in the circuit court for the eastern district of Wisconsin against the Milwaukee Refrigerator Transit Company, the Pabst Brewing Company, and several railroads, alleging that the payment of commissions by the carriers constituted a rebate. The subsequent hearings brought out many interesting facts. It seems that the Schlitz Brewing Company had operated a car line in much the same way at one time, and had received commissions from the railroads, but that this arrangement had ceased at the time of the passage of the Elkins Act. The manager of another refrigerator-car line in Wisconsin had consulted Attorney-General Moody as to the legality of these commissions with a view of procuring them for his own line. Attorneys for the Transit Company admitted the receipt of commissions, but claimed that no part of the earnings of the company had ever been turned over to the Pabst Brewing Company, and denied that the company had been organized, (as alleged), as a device, or otherwise for the purpose of enabling the Pabst Brewing Company to receive or accept any rebate, concession or discrimination forbidden by the acts of Congress. Attorneys for the railroads also claimed that they did not consider the payment of this commission an infraction of the law. The court decided, however, that although the particular practice above disclosed is not described in the Elkins Law, it comes within the inhibition of "any device whatever," and therefore is a rebate condemned by law.[1] It is fortunate that the court was able to make the finding that it did, and that the Elkins Act had been so worded as to cover this sort of device. Otherwise an avenue of escape from the jurisdiction of the law would have been opened, and the practice might have developed into a far-reaching and serious evil.

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[1] I. C. C., October, 1904. *Hearings*, p. 40 *et seq.*

The investigations of the Bureau of Corporations into the transportation of petroleum in 1906 unearthed discriminatory practices in connection with the use of tank cars of the Standard Oil Company. Although, as has been stated, the tank cars of the Union Tank Line receive three-quarters of a cent mileage, loaded or empty, the cars of independent refiners in California receive but six-tenths of a cent on loaded cars only, except where the haul exceeds 800 miles, in which case three-quarters of a cent is allowed on the excess mileage, but again on the loaded car only. It was also found that the Standard Oil Company had withdrawn 300 cars that it had leased to the Southern Pacific Railroad, and that by refusing to furnish cars to California oil refiners, it had hampered the industry in that state, caused a fall in prices, and then stepped in itself and bought up crude oil at the reduced prices.[2] This is a good illustration of the possibilities under private ownership.

On the whole, it is safe to say that the actual payment of rebates in connection with private-car operations has practically ceased, and that the two most important influences in bringing this about have been the exclusive contract and the Elkins Act. Some forms of discrimination still persist, however. The excessive mileage earnings of shippers' cars, especially in the dressed-meat traffic, are generally denounced on all sides as a discrimination in favor of the large shippers. Under the present organzation of industry on a large scale, it may be claimed that the resulting economies are justifiable, and that they are a part of the more efficient methods of production. Logical as this economic argument may be in many instances, there is one important consideration which vitiates its application to the case in hand. That consideration is the fact that the advantages received from large earnings are derived not from any inherent superiority of economic organization, but from a power over the common carriers of the country, a power resulting from the competition of railroads. The advantages redound to private corporations, and result in losses to the *quasi*-public business of transportation. The theory that competition among railroads is the remedy for all transportation evils has long been discarded, and legislation has been enacted for curing the abuses resulting from such a régime. Whether this practice can be attacked under the head of discriminations, however, is open to question. Although theoretically it would seem that the railroads could make a stand and rid themselves of the burden imposed by the car lines, experience has shown that so far they have not been able to do so. It would seem, therefore, that the government should interpose and free the railroads from this result of their competition, just as it has largely put a stop to rate wars, rebates, *etc.* The true source of relief would seem to lie in this direction.

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[1] *Cf.* 142 *Fed. Rep.*, 247; 145 *Fed. Rep.*, 1007; *Int. Com. Rep.*, 1906, p. 47; also *Milwaukee Sentinel* for Nov. 13 and Dec. 7, 1905 and for Jan. 30 and Feb. 1, 1906.

[2] Report of the Commissioner of Corporations on the Transportation of Petroleum, *Sen. Doc.*, no. 428, 59th Cong., 1st sess., p. 45 *et seq.*

CHAPTER VIII

Proposed Remedies and Present Tendencies

During this recital of the practices and operations of private cars we have attempted to suggest certain remedies for some of the evils that still exist. These remedies, such as the reconstruction of icing charges on a tonnage basis, and the lowering of the mileage rental for certain classes of cars, are the simplest and least radical of the many proposed methods of dealing with the problem, and are therefore the most likely to be adopted. It is not our purpose, however, distinctly to advocate any particular method of procedure, but rather to outline methods that have been proposed, and to subject them to a critical examination. Without going further into the possibilities of altering the amount of the mileage rental, in case that system should continue—as it undoubtedly will—we shall take up the more radical propositions advanced for the solution of the problem. The four most deserving attention are: first, to abolish private cars altogether, and to require the railroads to furnish their own special equipment; second, to form an equipment company or holding company to take over the private cars to be owned jointly by the railroads; third, to permit the continuance of private ownership, but to require the placing of the cars on a *per diem* basis of rental payment, instead of the mileage basis now in vogue; and fourth, to amend the Interstate Commerce Act so as to make it apply to private companies, and thus bring their relations with the railroads under public control.

It has been a common impression that the leaders of the fight against private cars advocate their entire abolition. This, however, is scarcely true, for the most careful students of the problem seek merely a cure for the evils, mainly through Federal legislation. Mr. J. C. Scales, Chairman of the Refrigerator Car-Lines Committee of the National League of Commission Merchants, said specifically in his annual report for 1906, that the committee did not aim to drive private-car lines out of business, and that they thought it would be unconstitutional to attempt to do so. There is a strong popular opinion, however, that they should be abolished, and even a few of the active leaders in the opposition favor this. One of the most important witnesses before the Senate Committee on Interstate Commerce said: "I want to go on record in saying that in my judgment the only way to successfully legislate against these private-car-line practices is to eliminate the private freight car."[1] At another time the same witness said: "The proper course, in my judgment, and of those that I represent, is to eliminate, root and branch, all these barnacles from our common highways."[2] Many other quotations might be given from various sources to show that it is a very common feeling that this should be done. In fact, there was a bill introduced into Congress in 1906 to make it unlawful for any common carrier engaged in interstate commerce to use on its line any car not owned by it or by some other common carrier.

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[1] Testimony of E. M. Ferguson, President of the Western Fruit Jobbers' Association, Elkins Com. *Hearings*, vol. iv, p. 3682.

[2] *Ibid.*, vol. i, p. 313.

It is perhaps unnecessary to devote any considerable space to proving that this radical method of dealing with private cars is contrary both to the spirit of our laws and institutions, and also to the principles of economics. As has been frequently pointed out, the origin of private cars was due in large part to the refusal of the railroads to furnish the necessary equipment for handling perishable products when they were becoming an important part of the traffic. The railroads were opposed to the shipment of dressed meats, and also to the use of refrigerator cars, because they owned stock cars, and had a remunerative business in the livestock traffic, which they did not wish to see destroyed. It was a rather hazardous experiment for the first packers in the field to build their own cars, and they only did so after attempting to induce the railroads to furnish equipment. Even since railroads have begun to furnish special-equipment cars, private companies have always taken the lead in perfecting devices for the efficient carriage of highly perishable products, as they have gradually come on the market. In view of the fact that these companies have built up systems of the most improved cars, and have sunk large amounts of capital in them, it seems hardly fair to legislate them out of existence. Moreover, if it were entirely in the hands of the railroads to furnish equipment, it is almost certain that they would not provide cars in sufficient variety of design, and in sufficient numbers to give adequate facilities for the carriage of special commodities. To be sure, gross abuses have grown out of the system of private ownership, and the earnings of the cars have been so great that it has been profitable for companies who are not shippers to build and operate cars. The fact that they have been able to do so, however, is only further proof that the railroads have not kept abreast of the times by furnishing cars especially adapted to certain kinds of traffic—cars for which there has been a growing demand.

It is not to be presumed, however, that the railroads ought to have furnished this special equipment, and that they could afford to do so now. Quite the contrary is in fact the case. The casual observer will say that the railroads can afford to own special equipment, and will point to the Illinois Central, the Santa Fe, and the Southern Pacific as concrete examples. The case of these railroads, however, is entirely different from that of the majority of the railroads of the country. These three have a year-round business in perishable products; the Santa Fe and the Southern Pacific haul citrus fruits from California during the winter months, and deciduous fruits during the summer. Even with this advantage, the Santa Fe has a number of its cars idle part of the year and seeks to run them on other railroads where they are needed. The Illinois Central runs solid trains of refrigerator cars throughout the year for the carriage of bananas from New Orleans to northern markets, to say nothing of the rich fruit and vegetable crops of the whole Mississippi valley, which ripen at different seasons of the year. This road has sufficient perishable traffic to keep its equipment employed on its own lines, and it is a comparatively rare sight to see an Illinois Central refrigerator in a freight train on another railroad.

Although there are other railroads that could be classed to a certain extent in the same category with the three cited above, and some of these, like the Rock Island, for instance, are beginning to operate refrigerator cars of their own on a large scale, yet there are a great many railroads whose rails are in a particular section of the country, which could not begin to afford it. The southeastern roads furnish the best example of this. An official of the Central of Georgia testified that if his road were obliged to furnish cars for the peach traffic, it would have required in the year 1904, about 1700 or 1800 cars, which would have meant an outlay of about $2,000,000, and this for a season of only about six weeks duration.[1] Fruit refrigerator cars can not ordinarily be used for other kinds of traffic,[2] and if all roads were obliged to furnish cars, there would be no chance for a single road to let its cars out when it did not need them itself. The above official also mentioned the fact that in some years the peach crop is a failure, and that then there would be no use for the cars at all. The same condition exists in the case of the Southern Railway, the Seaboard Air Line, and also in trunk-line territory, and in New England. Mr. Midgley has said in this connection:[3]

> It is worse than folly to becloud the issue by statements that railroad companies could afford separately to provide the special cars that are now controlled by private companies. No sane man would advocate individual action; but they can proceed jointly, and thus resume functions which have been usurped by shippers and other private-car owners.

This quotation from Mr. Midgley brings us to the second method that has been suggested—namely, the formation of an equipment company to take over all private-car lines. It has been said that railroads could afford to own cars, because they could pay for them with what they now pay in the form of mileage. Of single roads, this is not true, but of all railroads taken together, it is true, and herein lies the ideal solution of the whole question—provided it is possible to bring about such a sweeping change. The advantage of such a system would be that the controlling company could distribute the cars among different sections of the country at the times they are needed, and on account of the great varities of climate the equipment could be kept in almost constant use. Analogous to this is the present organization of all private cars in the passenger traffic in the hands of the Pullman Company. To place all freight cars in the hands of a large private company, however, would mean the continuance of the present system of private cars on a larger scale, and with increased power to do evil. Much more defensible is the proposal to have such an equipment company owned and controlled jointly by the large railroad systems of the country. Mr. Midgley told the Interstate Commerce Commission in 1904 that he had parties in New York that were willing to put up $50,000,000 to absorb private cars so that they could be controlled and owned by the railroads.[1] The existence of powerful vested interests in the private-car business undoubtedly precludes such a solution, however, and there is not much chance of bringing it about until the operations of private cars are made much less profitable than they now are, either through government interference or through a change of policy by the railroads. In connection with this point, it is interesting to note that the *Railway Age* in an editorial in 1902 suggested two possible remedies: first, the consolidation of all private cars under a single corporate management, it being understood that in no case would the cars of shippers be hauled by the railroads; and second, to transfer the ownership of private equipment to the railroads, unite with it all of the corresponding special equipment owned by them, and handle the entire lot through the agency of a clearing house.[1] This suggestion to pool the equipment and handle it through a central clearing house, leaves little to be desired from an economic point of view, but is somewhat in advance of the times. The pooling of all freight equipment has frequently been urged, and the *Railway Age* is optimistic enough to believe that eventually a general car-equipment clearing house will be established. The benefits that would accrue from such a system are even more manifest in the case of special-equipment cars than in the case of freight cars in general.

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[1] Before the Interstate Commerce Commission, October, 1905.

[2] An agent of the Japanese Government consulted the superintendent of the Armour Car Shops in Chicago in connection with the installation of refrigerator service in Japan, but he was discouraged when he learned that different kinds of cars had to be built for the fruit traffic and for the beef traffic, and that they could not be used for ordinary freight when not needed for perishable traffic.

[3] *Railway Age*, vol. 34, p. 549.

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[1] I. C. C., October, 1904, *Hearings*, p. 20.

The proposal to place all private cars on a *per diem* basis instead of the mileage basis of rental, emanates from Mr. Midgley. It was largely through his efforts that the change to *per diem* was effected in 1902 for all railroad-owned freight cars. He considers it a great mistake that private cars were not included in this change. The situation wherein railroad cars earn only 20 cents a day,[2] and private cars earn frequently 50 cents to one dollar a day, appears anomalous, inasmuch as the special equipment of the private companies costs but little more than ordinary freight cars. The fact that there is an interchange of freight cars by the railroads, with payments offset largely by receipts, detracts from the significance of this contrast, however. Mr. Midgley recommended in 1902 that refrigerator and tank cars be subject to a *per diem* charge of 30 cents, and stock cars and all other private cars 20 cents. On this basis he estimated that there would be an annual saving to the railroads of the country of $6,450,636.76 in car rental.[1] Later on, in 1904, he stated to the Interstate Commerce Commission that his solution was to put refrigerator cars on a 50-cent basis, and stock cars on a 30-cent basis. Mr. Midgley also expressed his belief that arrangements of this sort could be brought about. Suffice it to say that this would be an efficient method of curtailing the excessive earnings of private cars, and of making their returns correspond more nearly to a just percentage of their value. The difficulty, or even impossibility of making such a change at present, is clearly evidenced by the fact that Mr. Midgley, after a crusade lasting more than a year, was obliged to abandon the task. As the representative of some of the most powerful railroads in the country he had undertaken it, but no single railroad dared to let itself be identified with the movement, and although they furnished him with information and statistics, he could not use the names of railroads doing so in his articles. His influence was so great that his office, which is across the street from the Armour offices in Chicago, was practically abandoned by railroad men, none of them daring to appear there for fear their roads might be identified with the movement. The pressure at last became so great that he was obliged to abandon the whole project.[2]

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[1] *Railway Age*, vol. 34, p. 516.

[2] On July 1, 1907 all railroad-owned freight cars were put on a *per diem* basis of 50 cents a day, but steps are now being taken (Feb., 1908) by the American Railway Association to reduce it to 25 cents.

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[1] *Railway Age*, vol. 34, p. 677. See also vol. 36, p. 619 *et seq.* for an elaborate discussion of the possibilities of effecting this change.

[2] From a personal interview with Mr. Midgley in 1906.

The fourth remedy under consideration is the extension of government control over private-car lines by making the Interstate Commerce Act apply to them. The legislation of 1906 has partly done this, and its effects will be more fully described below. To understand the entire significance of the recent changes, it is necessary to enter more in detail into the attitude of the Interstate Commerce Commission, the extent to which it has been able to reach private cars under the law, and the legal and constitutional questions involved. Many opinions of the Commission have been cited, but questions concerning its jurisdiction have been purposely omitted in order not to confuse the reader.

As early as 1887, in its first annual report,[1] the Interstate Commerce Commission referred to the growing use of cars not owned by railroads, and the likelihood of the growth of a powerful system of such cars which would not be under the control of any legislation existing at the time. In this way the Commission announced its opinion that the Interstate Commerce Act of 1887 did not apply to private-car companies, and it recommended that a further designation of the agencies in transportation which should come under the supervision of the act should be made. This recommendation was repeated in 1889 and in 1890 by declaring that the payment of car mileage for the use of cars of private companies or individuals should be regulated by suitable provision. During these first years a few cases involving the use of private cars were investigated and decisions rendered thereon by the Commission, but all of them involved questions of discrimination by the railroads, and thus came under the jurisdiction of the Commission. In its report for 1891 the Commission devoted much space to a discussion of the use of shippers' cars, denounced the discriminatory practices which resulted therefrom, and referred the matter "to the wisdom of Congress, should it see fit to act, without any special suggestion from the Commission."[1] The Commission has always been very severe in its criticism of the practices of private cars, and it has continually chafed under its inability to reach them through the law. Private companies were not made common carriers by the Interstate Commerce Act, and consequently the Commission has been powerless to inquire into their financial operations.

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[1] Page 15.

The imposition of heavy icing charges by these outside companies raised an important question of jurisdiction. The car-line representatives and attorneys have always claimed that icing is a local service, not a part of interstate traffic, and, therefore, not under the supervision of the Government. The Commission, on the other hand, has always claimed that the icing charge is a part of the transportation rate, and, therefore, under the purview of the Commerce Act. The first decision on this point was rendered in 1895 in a case involving rates and refrigeration charges on strawberries from the Carolinas to northern points. The Commission said, in part, as follows:

> It is the duty of the carrier to furnish an adequate and suitable car equipment for all the business it undertakes, and also whatever is *essential* to the safety and preservation of the traffic in transit. When carriers undertake the transportation of perishable traffic requiring refrigeration in transit, ice and the facilities for its transportation in connection with that traffic are incidental to the service of transportation, and the

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[1] Page 41.

charge therefore is a charge "*in connection with*" such service within the meaning of section one of the act to regulate commerce, in respect to the reasonableness of which the carrier is subject to that provision of the statute.

The Commission then went on to declare certain icing charges excessive, and to pronounce a fair maximum rate for the same, in accordance with the power the Commission exercised at that time prior to adverse court decisions.[1]

This decision of the Commission went uncontested at the time, but it did not settle the matter, because the same question as to jurisdiction over icing charges came to the front in both the California and Michigan fruit cases, known respectively as the Orange Rate cases, and the Michigan Car Line case, which have been frequently referred to above. In its decision in the Michigan case in 1904, the Commission held that it was a part of the common-law liability of railroads to furnish refrigerator cars for perishable traffic in fruits and vegetables, but that they may provide such cars either by purchase or by lease; that carriers should, in the opinion of the Commission, be under legal compulsion to furnish ice for refrigeration, but when they do not, the charge for refrigeration becomes part of the total charge for transportation, and must be reasonable; furthermore, that such charges should be published and adhered to exactly as all other charges for transportation are published and observed.[2] The same principles were reiterated in the decision of the Commission in the California case in 1905.[3]

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[1] *Int. Com. Rep.*, 1895, p. 210 and 6 *I. C. C. Rep.*, p. 295.

[2] *Int. Com. Rep.*, 1904, p. 300. For full text of decision see 10 *I. C. C. Rep.*, p. 360.

[3] *Int. Com. Rep.*, 1905, p. 114 or 10 *I. C. C. Rep.*, p. 590.

Although in these cases the Commission stated its opinion that it had jurisdiction over icing charges, it refrained from issuing an order. Consequently the matter has not been taken to the courts, and the point has never been judicially determined. The car companies continued to deny this power to the Commission, and asked for an order so that they might take the matter to court and procure a final decision. Without discussing the opposing arguments and the possible outcome of the matter if it had gone to the courts, suffice it to say that the question was put to rest by Congress in 1906, when in its rate law it included in the definition of transportation, "all services in connection with the receipt, delivery, . . . ventilation, refrigeration, storage, and handling of property transported." The inclusion of the single word "refrigeration" had the result of definitely adopting the contention of the Interstate Commerce Commission, as quoted in the cases above, and now icing charges are accordingly published by the railroads in their tariffs. Representatives of fruit merchants spent much time and energy in Washington at the time of the discussion in Congress attempting to secure the insertion of much more drastic clauses in the rate bill, and they were somewhat disappointed that they succeeded in having but a single word incorporated in the measure. The result, however, is far-reaching, and cannot but alleviate the abuses incident to refrigeration charges.

In January, 1906, shortly before the passage of the Hepburn Act, there was one court decision, which although it did not deal specifically with the question of supervision over refrigeration charges, extended the jurisdiction of the Commission in an important respect. This is the case referred to above,[1] which grew out of a refusal on the part of certain stock-car owners to answer questions concerning the payment of rebates. The defendants maintained that the Interstate Commerce Act applied only to corporations which were common carriers, and not to outside, private corporations. The decision of Judge Landis[1] upheld the power of the Commission to compel witnesses to answer questions, and said that the Interstate Commerce Act was designed to regulate *commerce*, and not *particular corporations*, and that therefore the Commission has jurisdiction not alone over the common carrier, but also over private-car lines and every other person or thing that can in any way interfere with the enforcement of the statute, which provides for uniformity of freight rates. In other words, it was the opinion of the court that the Interstate Commerce Commission has the power to inquire into the practices of private-car lines, in so far as they directly affect freight rates, and furthermore explained that by the freight rate is meant the net charge for transportation to the shipper. The decision might have had an important bearing on the question of refrigeration charges, if it had not been for the definite settlement of the question by legislation shortly afterwards, but it went even further than the Hepburn Act in some respects in extending the jurisdiction of the Commission over private-car lines.

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[1] *Cf. supra.*, p. 163.

As a result of this decision and of the Hepburn Act, the jurisdiction of the Interstate Commerce Commission has been extended over the affairs of private-car companies in so far as they affect freight rates, discriminations and rebates, and refrigeration charges. A further result of the Hepburn Act has been that private-car lines deal exclusively with the railroads, rather than with the public. Many of the abuses have been due to the fact that car companies have made their arrangements directly with shippers, arrangements which have been beyond the pale of the law, because private-car lines are not common carriers engaged in interstate commerce. Contrary to the opinion of many, they have not been made common carriers by the recent legislation, and there is no reason why they should be, because they are not transporters of products, but merely lessors of cars to the railroads. The common-law liability of railroads to furnish equipment is fulfilled through leasing cars, and private-car companies stand in the same relation to them technically as do all car-equipment companies. Since they are not common carriers, the Commission cannot investigate their private affairs, such as earnings, capitalization, *etc.*, unless, as stated above, their practices directly affect freight rates (the icing charge being considered a part of the freight rate).

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[1] 145 *Fed. Rep.*, 235.

From the foregoing it will be seen that the fourth proposal under discussion in this chapter, the extension of government control over private cars, has been brought about to a considerable extent by recent legislation. In fact, many believe that the whole problem has been solved. Certain it is that the agitation has perceptibly subsided during the last two years, and the prospects are that private cars will cause much less trouble in the future than they have in the past. Government regulation seems to be the surest and safest remedy, and it is likely that most of the objectionable features will disappear within a short time. One important phase of the question, however, remains untouched, and there is no immediate prospect of a solution. This is the excessive mileage earnings of cars belonging to the meat packers, and the consequent drain on the earnings of the railroads, discussed at the end of Chapter VII. The only possible way to reach mileage rentals through existing law would be under the head of discriminations and rebates, unless some direct effect on the freight rate could be proved. The freight rates on packing-house products are notoriously low, and Mr. Midgley considers that dressed meats are the least remunerative class of traffic that the railroads haul. These low rates are not due so much to the ownership of cars, as to the fact that the packers are originators of immense volumes of traffic for which the railroads have recklessly competed. These freight rates might be proceeded against as discriminatory with respect to other commodities, and increased so as to counterbalance the heavy mileage payments made by the railroads for the use of the cars. At all events, this two-fold result of the power held by the packers, low freight rates, and high mileage payments on refrigerator cars, is the most glaring evil that exists in connection with private-car operations, and if the railroads continue powerless to make a united stand, it would seem proper for the Government to proceed under one or other of the methods suggested above. If these fail, more drastic regulation, such as the conferring of power on the Interstate Commerce Commission to regulate the mileage rental paid by common carriers to private-car companies, might be expedient.

As regards private cars as a whole—and there are about 150,000 in the country—the attitude suggested by this study is one of approval rather than of condemnation. The abuses that still exist are connected with but a comparatively small proportion of the total number of cars, and these abuses have been fast disappearing during the last few years. Since privately-owned cars are almost entirely of special design, built to carry particular commodities for which the equipment of the railroads has proved inadequate, they are performing a valuable service in furthering the industrial growth of the country. In July, 1906, there were about 380 different private-car companies enumerated in the *Railway Equipment Register*, some of these owning only two, five or ten cars each, and about 40 of them owning 500 cars or over. Manufacturing concerns of many different kinds own cars for their special and peculiar uses, and this is but a natural phase of the more efficient, large-scale organization of our productive forces.

Traffic in perishable and other commodities requiring specially-designed cars made its appearance but a comparatively short time ago, and there will undoubtedly be a tremendous development in this direction in the future. Special-equipment cars will be needed more and more, and it is doubtful if the supply will keep pace with the demand. Judging from present indications, the railroads will probably take the lead in the future in furnishing such equipment, and the number of private cars is not likely to increase to any great extent. The supplanting of Armour equipment on the Harriman Lines has seriously reduced the operations of Armour and Company's fruit cars, and that company has ceased for the present to add to its equipment. The increasing railroad ownership of refrigerator cars will tend to discourage the building of such cars in large numbers by private companies on account of the uncertainty in finding use for them. Officials of the refrigerator-car departments of various railroads met but recently (Feb. 5, 1908), to form an association known as the Railroad Refrigerator Car Service Association, for the purpose of formulating through mutual coöperation a standard code of rules regarding preparation of cars, inspection of contents, way-bill instructions, shipping directions, *etc.*, and to keep in touch with all new appliances and tests. This is an indication of the attention that the railroads are paying to the matter, and of the probable line of development in the future. A wise step would be for connecting roads to consolidate their special-equipment cars, or to build them coöperatively, and thus develop through-lines analogous to the fast-freight lines. It is hazardous to generalize too freely about the future, however, until the effects of recent agitation and legislation have had time to show themselves more definitely.

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